HUSSMANN®

Excel

Ultra Low Front Rear Load Medium Temperature

Dairy Merchandisers

Installation & Service Manual

Shipped With Case Data Sheets

IMPORTANT

Keep in store for future reference!

MANUAL- I/O EXCEL ULF REAR LOAD DAIRY

P/N 0501930_D

Excel Series

AUGUST 2014

Spanish P/N 0532256

French P/N 0532257

TABLE OF CONTENTS

INSTALLATION TOOL LIST iv

INSTALLATION
NSF Certification 1-1
Location 1-1
Shipping Damage 1-1
Unloading 1-1
Serial Plate Location 1-2
Exterior Loading 1-2
Merchandisers Shipped with End Installed 1-2
Shipping Braces 1-2
Setting Rear Load Case 1-3
Case Leveling 1-3
Joining Instructions 1-5
Preparation 1-5
Apply Gaskets 1-6
Align End Frames 1-7
Fasten End Frames 1-8
Sealing 1-9
Install Splashguard Brackets 1-9
Offsetting Bumper 1-10
Installing End Assemblies 1-11
Optional Front Rail Light 1-15
Bi-Fold Door Setup 1-17

REFRIGERATION / ELECTRICAL
Refrigerant 2-1
Refrigerant Piping 2-1
Connection Location 2-1
Multiplexing 2-1
Line Sizing 2-1
Oil Traps 2-1
Pressure Drop 2-1
Insulation 2-2
Suction Line 2-2
Liquid Line 2-2
Refrigeration Thermostat 2-3
Defrost Sequences 2-3
Merchandiser Electrical Data 2-4
Electrical Connections 2-4
Field Wiring 2-4
Identification of Wiring 2-4
Wiring Color Code 2-4

DRIP PIPING AND SPLASHGUARDS
Waste Outlet and Water Seal 3-1
Installing Drip Piping 3-1
Optional Ultra Low Front
Drip Piping Arrangements 3-2
Installing Splashguards 3-3
Cove Trim 3-4

START UP / OPERATION
Start up 4-1
Load Limits 4-1
Stocking 4-1
Multi-deck Shelf Alignment 4-2
Multi-deck Shelf Configuration 4-2
Installing FDA/NSF Required
Thermometer 4-2

MAINTENANCE
Care and Cleaning 5-1
Fan Plenum 5-1
Fascia Panels 5-1
Exterior Surfaces 5-1
Interior Surfaces . . . . . 5-1 & 5-2
Cleaning Honeycomb Assemblies 5-2
Cleaning Door Tracks 5-3
Maintaining fluorescent lamps 5-4
Cleaning stainless steel rails 5-4
Cleaning Under Merchandisers 5-4
Removing Scratches from Bumper 5-4

SERVICE
Replacing Fan Motors and Blades 6-1
Replacing Fluorescent Lamps 6-2
Replacing Lamp Holders and End Caps . . 6-2
Replacing Electronic Ballasts 6-3
Diagram — Ballast Arrangement 6-3
Bi-Fold Door Adjustment 6-4
Repairing Aluminum Coil 6-4

IMPORTANT
KEEP IN STORE FOR FUTURE REFERENCE
Quality that sets industry standards!

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EXCEL INSTALLATION TOOL LIST

Unloading From Trailer:

Lever Bar (also know as a Mule, Johnson Bar, J-bar, Lever Dolly, and pry lever)
Moving Dolly

Setting Case Line-Up:

Level, 4 ft suggested
Ratchet
1/4 in. Socket
5/16 in. Socket
1/2 in. Socket
Battery Drill/Screw Gun
Caulking Gun
10 in. Adjustable Crescent Wrench

* *

ANSI Z535.5 DEFINITIONS

• **DANGER –** Indicate[s] a hazardous situation which, if not avoided, will result in death or serious injury.

• **WARNING –** Indicate[s] a hazardous situation which, if not avoided, could result in death or serious injury.

• **CAUTION –** Indicate[s] a hazardous situation which, if not avoided, could result in minor or moderate injury.

• **NOTICE –** *Not related to personal injury –* Indicates[s] situations, which if not avoided, could result in damage to equipment.

REVISION HISTORY

REVISION D
1. Added Proposition 65 Warning

REVISION C
1. Added warning box, page 1-1.
2. Maintaining Fluorescent Lamps, page 5-4.
3. Revised *Replacing Fluorescent Lamps*, page 6-2.

REVISION B
1. Formatted text; adjusted headers and footers; updated warnings and cautions.
2. Added D5X-URLE to illustrations
3. Added drip piping pitch, page 3-1.

REVISION A
Original Issue

INSTALLATION

NSF CERTIFICATION

These merchandisers are manufactured to meet ANSI / National Sanitation Foundation (NSF®) Standard #7 requirements. Proper installation is required to maintain ANSI certification. Near the serial plate, each merchandiser carries a label identifying the type of application for which the merchandiser was certified.

ANSI/NSF-7 Type I – Display Refrigerator / Freezer
Intended for 75°F / 55%RH Ambient Application

ANSI/NSF-7 Type II – Display Refrigerator / Freezer
Intended for 80°F / 55%RH Ambient Application

ANSI/NSF-7 – Display Refrigerator
Intended for Bulk Produce

LOCATION

These merchandisers are designed for displaying products in air conditioned stores where temperature is maintained at or below the ANSI / NSF-7 specified level and relative humidity is maintained at or below 55%.

Placing refrigerated merchandisers in direct sunlight, near hot tables or near other heat sources could impair their efficiency. Like other merchandisers, these are sensitive to air disturbances. Air currents passing around merchandisers will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc. to create air currents around the merchandisers.

Product should always be maintained at proper temperature. This means that from the time the product is received, through storage, preparation and display, the temperature of the product must be controlled to maximize the life of the product.

SHIPPING DAMAGE

All equipment should be thoroughly examined for shipping damage before and during unloading.

This equipment has been carefully inspected at our factory. Any claim for loss or damage must be made to the carrier. The carrier will provide any necessary inspection reports and/or claim forms.

Apparent Loss Or Damage
If there is an obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim.

Concealed Loss Or Damage
When loss or damage is not apparent until after equipment is uncrated, retain all packing materials and submit a written request to the carrier for inspection, within 15 days.

UNLOADING

Improper handling may cause damage to the merchandiser when unloading. To avoid damage:

1. Do not drag the merchandiser out of the trailer. Use a Johnson bar (mule).

2. Use one dolly to remove the merchandiser from the trailer.

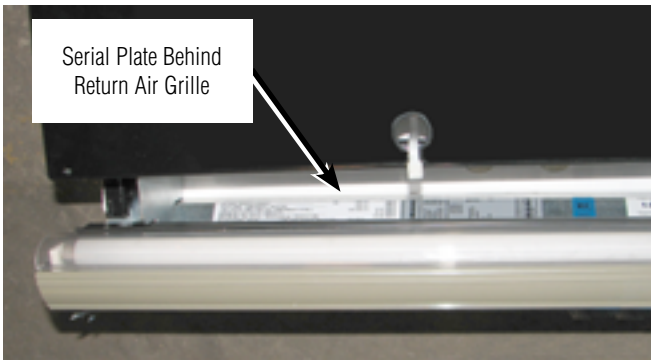
3. Use two dollies to move merchandisers to lineup.

⚠ WARNING

Do not walk on top of case.
Do not store items or flammable materials atop the case.

SERIAL PLATE LOCATION

Direct a flashlight through the return air grille behind the front rail to locate the serial plate on the left end of the Rear Load model.



EXTERIOR LOADING

Do NOT walk on top of merchandisers or damage to the merchandisers and serious personal injury could occur. **THEY ARE NOT STRUCTURALLY DESIGNED TO SUPPORT EXCESSIVE EXTERNAL LOADING** such as the weight of a person. Do not place heavy objects on the merchandiser.

MERCHANDISERS SHIPPED WITH END INSTALLED

If the merchandiser was shipped with the end installed, two long bolts were used to hold the shipping brace to the end. If the shipping bolts are reinserted after removing the brace, they will extend into the product area. THEREFORE, BE SURE TO REPLACE THESE BOLTS WITH THE SHORTER BOLTS PROVIDED. NSF requires any bolt or screw in the product area be capped or cut off if it has more than three exposed threads.

NOTE:

Be careful not to damage the factory installed end while moving the merchandiser. Make sure that tools are positioned past the end and beneath the merchandiser's support bar.

SHIPPING BRACES

Move the merchandiser as close as possible to its permanent location, then remove all packaging. Check for damage before discarding packaging. Remove all separately packed accessories such as kits and shelves.

Do not remove end braces until joining begins. Recycle braces and hardware.

⚠ WARNING

Do NOT remove shipping braces until the merchandisers are positioned for installation.

For California Businesses:

⚠ WARNING

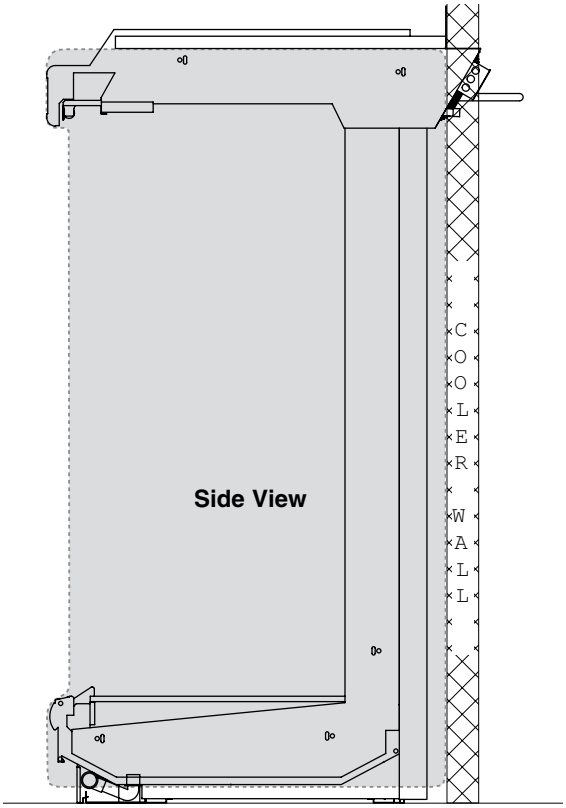
This product may contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

This warning is the result of the California State law known as the California Safe Drinking Water and Toxic Enforcement Act of 1986, which is commonly referred to as "Proposition 65."

This warning does not mean that Hussmann products will cause cancer or reproductive harm, or is in violation of any product-safety standards or requirements. As clarified by the California State government, Proposition 65 can be considered more of a 'right to know' law than a pure product safety law. When used as designed, Hussmann believes that our products are not harmful. We provide the Proposition 65 warning to stay in compliance with California State law. It is your responsibility to provide accurate Proposition 65 warning labels to your customers when necessary. For more information on Proposition 65, please visit the California State government website.

SETTING REAR LOAD MERCHANDISER

The rear load merchandiser is installed in a cooler wall. The illustrations below show the relationship between the wall and the merchandiser. The rear of the canopy extends through the cooler wall. Note that the uprights are forward of the wall with the merchandiser end closing the gap.



MERCHANDISER LEVELING

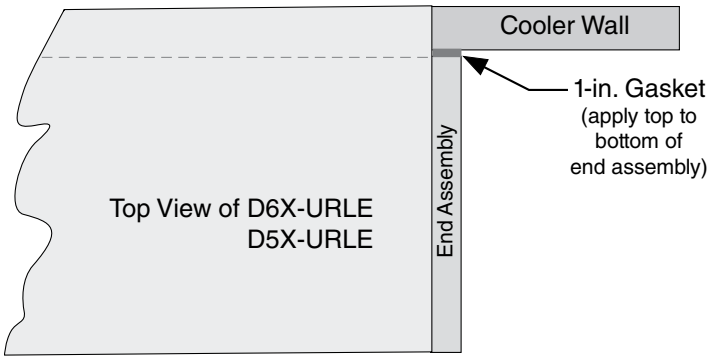
Merchandisers must be installed level to ensure proper operation of the refrigeration system and to ensure proper drainage of defrost water. During all steps of setting, joining and leveling merchandisers, close attention to position and operation must be maintained.

NOTE: BEGIN LINEUP LEVELING FROM THE HIGHEST POINT OF THE STORE FLOOR.

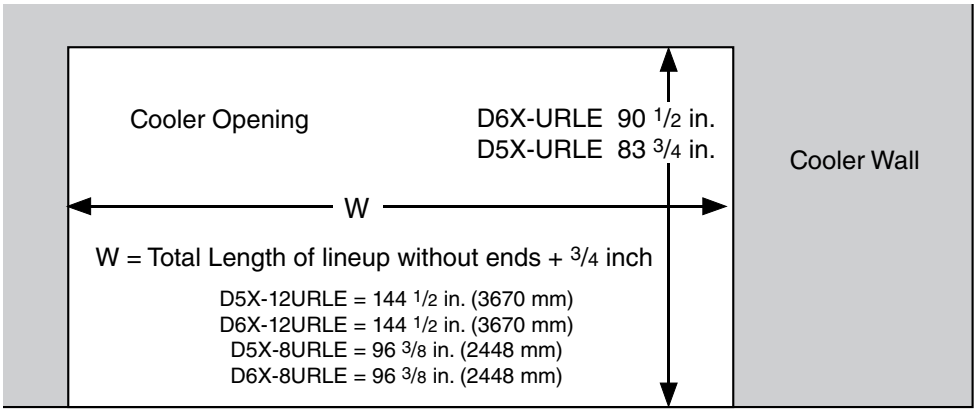
IMPORTANT

Do not remove shipping braces from
BI-FOLD DOORS
until the lineup is complete including joining and end installation.

Bi-fold door set-up and operating instructions begin on Page 1-17



Top View


Cooler Opening
D6X-URLE 90 1/2 in.
D5X-URLE 83 3/4 in.
Cooler Wall
W
W = Total Length of lineup without ends + 3/4 inch
D5X-12URLE = 144 1/2 in. (3670 mm)
D6X-12URLE = 144 1/2 in. (3670 mm)
D5X-8URLE = 96 3/8 in. (2448 mm)
D6X-8URLE = 96 3/8 in. (2448 mm)

Front View

Opening Required in Cooler Wall

Preparation

1. Using store blueprints, measure off and mark on floor the exact dimensions/locations of the merchandiser footprint.

2. Snap a chalk line for the front and rear positions of the base legs.

3. Mark the location of each joint from front to back lines.

4. **FLOORS ARE NOT LEVEL!!!** When working with two or more merchandisers to be joined, the whole lineup must be leveled on the same plane, left to right and front to back. This means that the entire lineup must be brought up to the level of the highest merchandiser in the lineup.

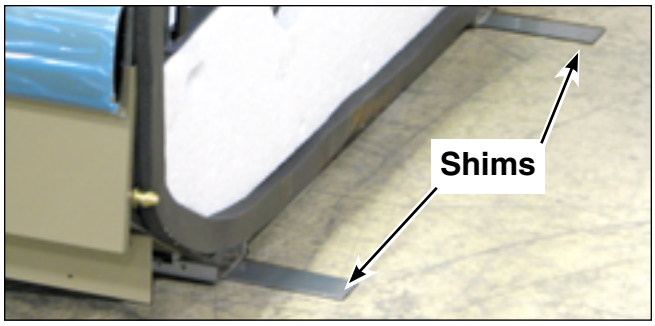
Along the lines previously marked, find the highest point of the floor by:

- Walking the floor and noticing any dips or mounds;
- Using a string level; and
- Using a transit.

Leveling

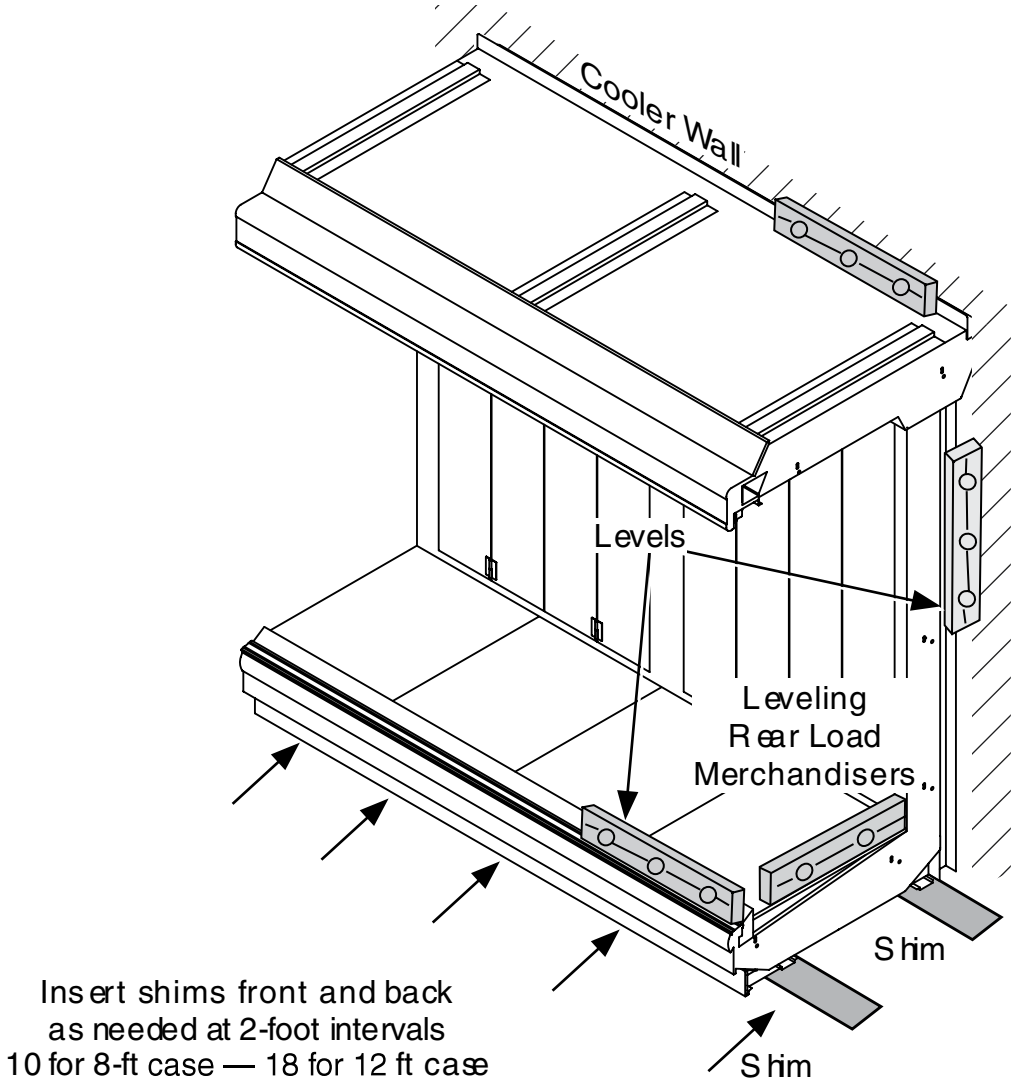
Position the first merchandiser at the highest point on the floor. Work outward from that point to create the case line-up. Use a 48 inch (1220 mm) or longer level for end-to-end leveling. The rear edge of the top foam panel of the merchandiser is a good location for the level at the rear of the merchandiser, and the top rail is a good location for the level at the front of the merchandiser. For leveling the merchandiser front-to-rear, a 24 inch (610 mm) level should be placed on the bottom display pan. If the merchandiser has a factory installed end, the level should be placed on the canopy support brackets on top of the merchandiser. Suggested level locations are shown in the following illustrations.

Level the merchandiser by all four corners. Start at the rear by placing as needed the provided shims under each end of the rear base rail. The shims are long enough to allow the adjoining merchandiser to be leveled with the same shim. When the rear of the merchandiser is level end-to-end, move to the front of the merchandiser. Insert shims as needed at each front corner so that the front is also level from end-to-end. At this point, check to see if the merchandiser is level front-to-rear. If it is not, add or remove shims until the merchandiser is level front-to-rear.



The merchandiser should be solidly supported at least every 2 feet (610 mm). Once the merchandiser is level, if any gaps are present, shims should be inserted under the front and rear base rails approximately in line with the cross-members to support the front and rear of the merchandiser.

It is the installing contractor's responsibility to ensure the merchandiser has adequate support under each cross-member. Leveling and supporting are critical to prevent air and water leaks.



JOINING INSTRUCTIONS

Sectional construction means that two or more cases may be joined in line yielding one long continuous display requiring one pair of ends.

ALL JOINTS MUST BE AIR-TIGHT TO PREVENT FORMATION OF ICE OR CONDENSATION.

Prep Merchandiser

1. Check to be sure that merchandisers are level. Locate the Joining Kit and check contents.

2. Remove shelves (if installed), display pans, and front air grille from the right end.

3. Remove any factory-installed nut retainers from top frame, upright and bottom shoe of both ends to be joined.

Apply Gaskets as Follows:

Right End ONLY

1. Apply the 1 5/8-inch gasket around the top of the merchandiser as shown. It must be at the edge. Check to be sure that there are no gaps between gasket and merchandiser.

2. Apply the 1 inch (25 mm) gasket on the metal merchandiser frame as shown across the bottom. Check to be sure that there are no gaps between merchandiser and gaskets.

3. Apply 1 5/8-inch gasket across the top, from one end of the merchandiser to the other, where the merchandiser meets the cooler wall. Lap gasket if necessary — do not butt ends. The lengthwise gasket must lap the front-to-back gasket to fill any gap at the cooler wall.

Apply Silicone Sealant to Right End ONLY from the top gasket to the bottom gasket as shown in the illustration.

IMPORTANT

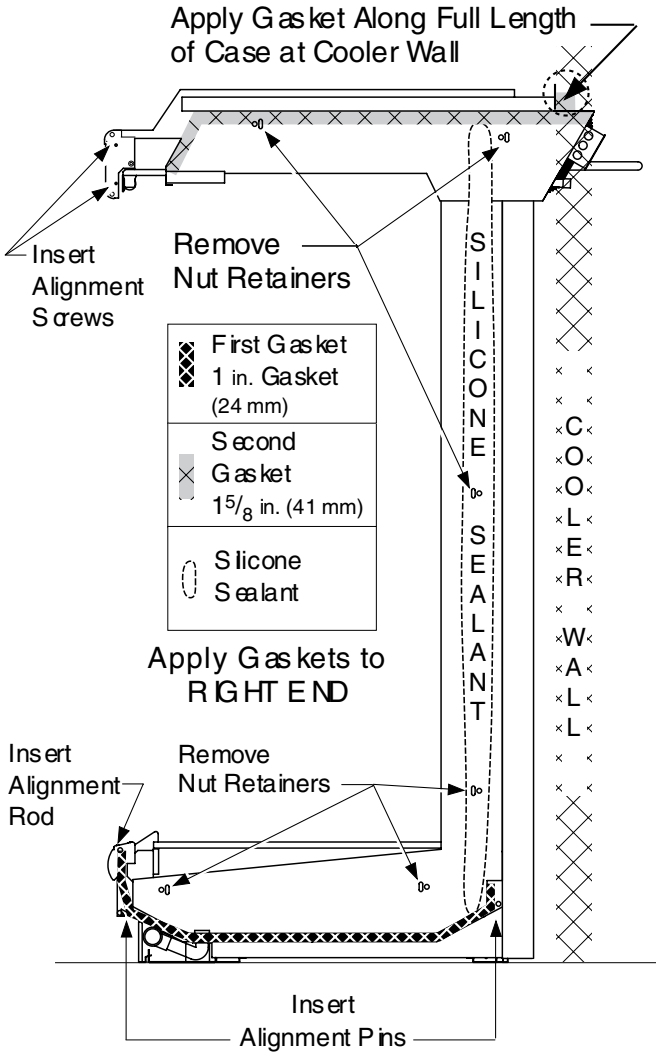
• Do not stretch gasket, especially around corners.

• Do not butt gaskets; always overlap them as shown.

• Remove paper backing after gasket has been applied.

• *Perimeter gasket required by* ***NSF.***

• End caps required for rail light.

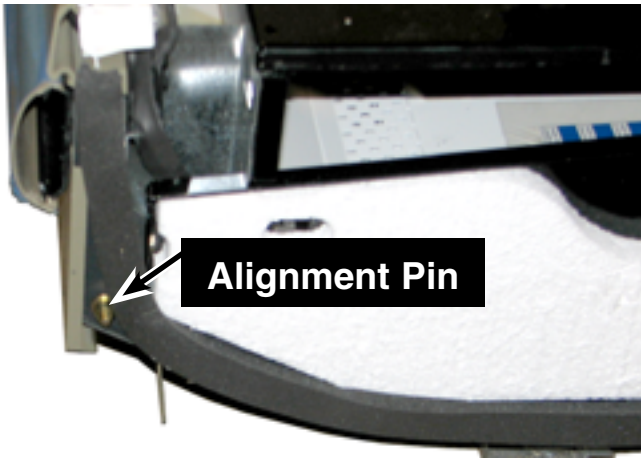

Apply Gasket Along Full Length of Case at Cooler Wall
Insert Alignment Screws
Remove Nut Retainers
First Gasket 1 in. Gasket (24 mm)
Second Gasket 1 5/8 in. (41 mm)
Silicone Sealant
SILICONE SEALANT
COOLER WALL
Apply Gaskets to RIGHT END
Insert Alignment Rod
Remove Nut Retainers
Insert Alignment Pins

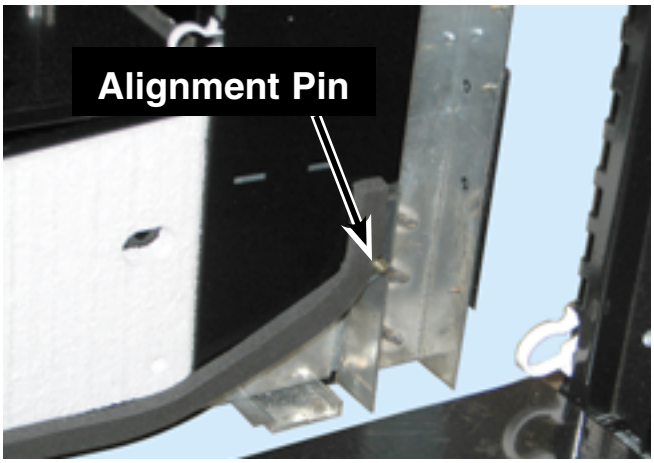
Align End Frames

NOTE THAT ALIGNMENT ORDER IS DIFFERENT FROM TIGHTENING ORDER! REFER TO THE ILLUSTRATION.

NOTE: cases must be level before joining.

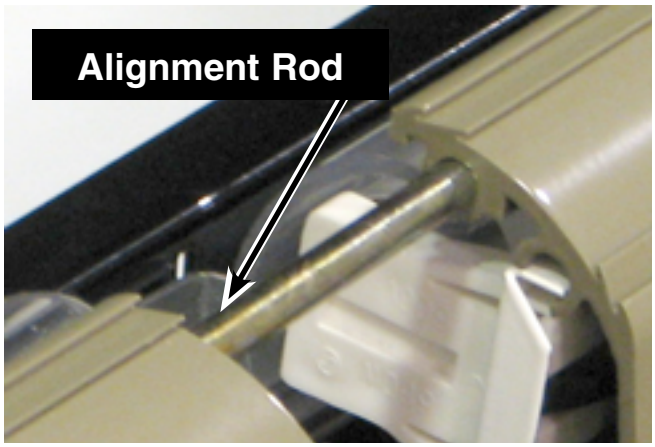
1. Insert alignment pin at lower front and lower back.





2. Insert the alignment rod (1/4 in. diameter x 6 in.) through hole in top rail, align and insert into second to rail.

3. ***Move the second case as close to the first as possible by pushing or using lever bar (mule).***



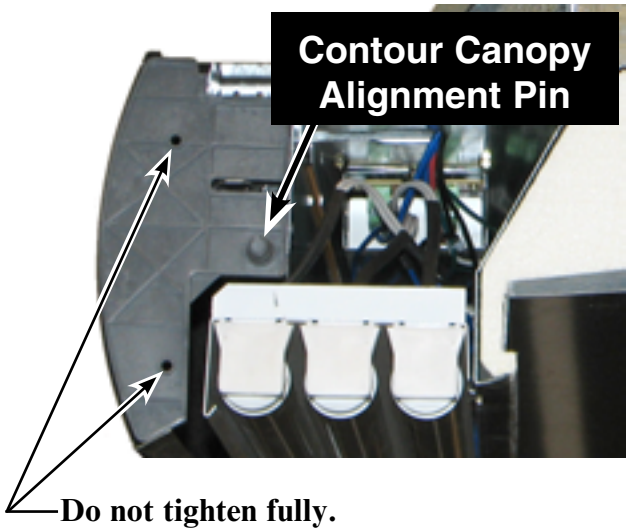
4. Match alignment pins with corresponding holes in foam bottom and canopy.

5. In both holes in bottom shoe, place a 2 inch neoprene washer between end frame and metal washer of each merchandiser. Loosely assemble bolt, washers, lockwasher and nut as shown on the next page.

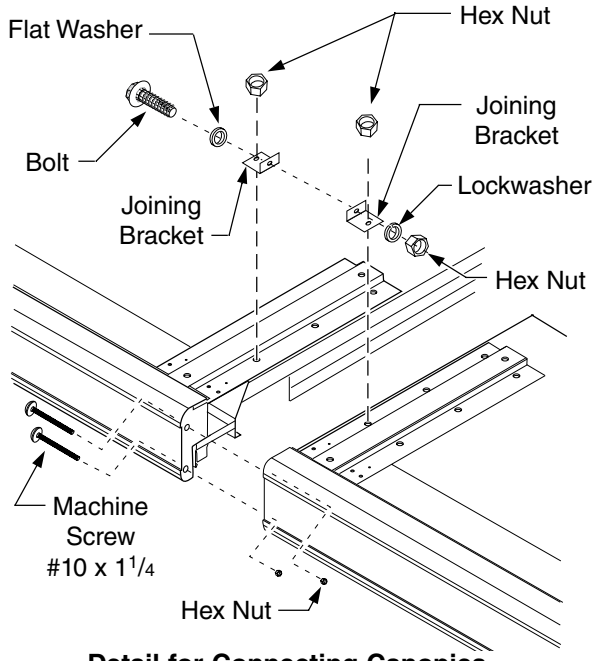
DO NOT TIGHTEN FULLY.

Do not attempt to draw merchandisers together using nut and bolt.

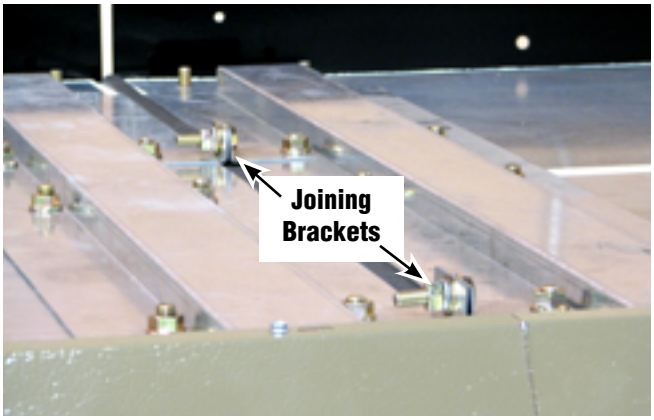
6. Insert a machine screw (#10 x 1 1/4 in.) through each hole in canopy end cap, align and insert into joining canopy end cap. Fasten with nuts. See detail below and on next page.



7. Draw canopies of multi-deck wall merchandisers together by using a bolt, flat washers, lockwasher and nut in the joining brackets atop the canopy. See detail below. **Tighten only until canopies touch.**



Detail for Connecting Canopies of Multi-deck Wall Merchandisers



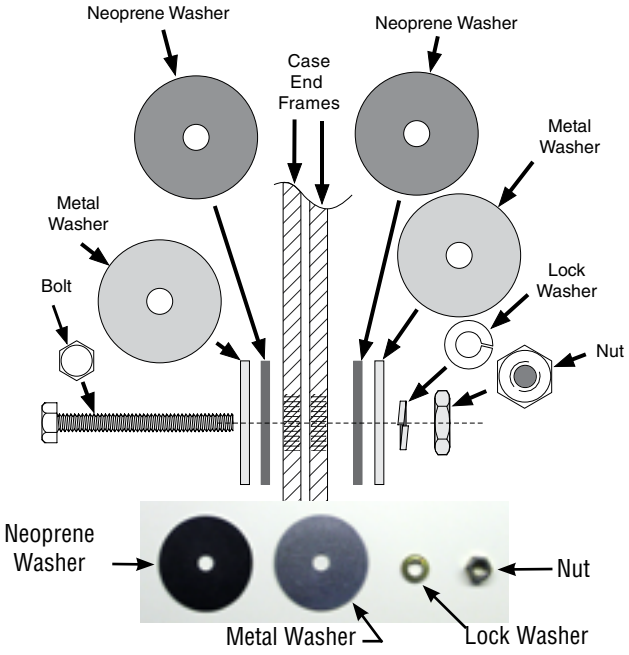
Detail for Connecting Canopies of Rear Load Ultra Low Front Merchandisers

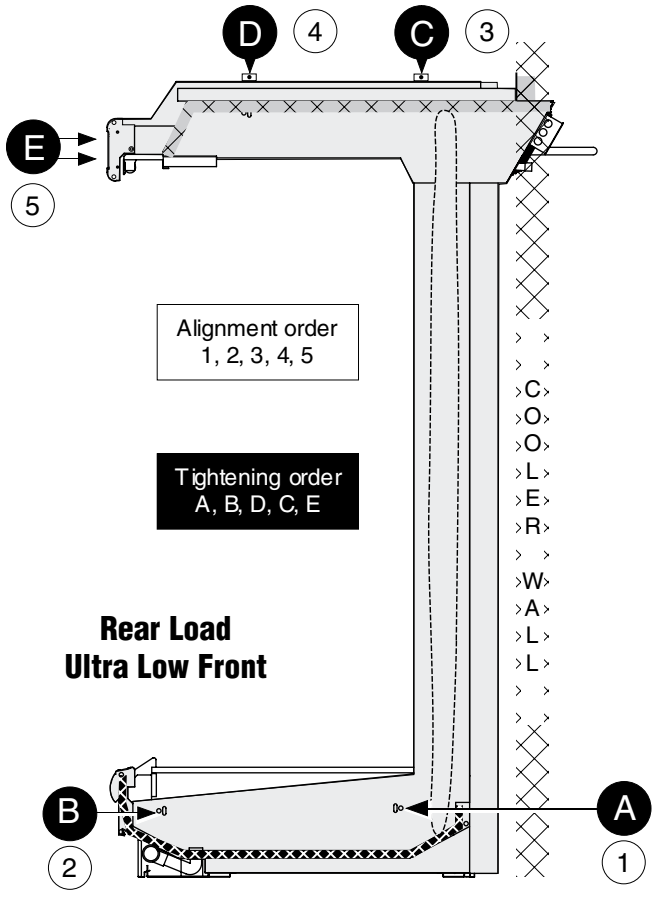
Fasten End Frames

1. Begin at lower back to draw end frames tight.

2. Tighten joints in the order shown (A, B, C, D) until the gaskets are compressed, and merchandisers join smoothly.

3. Tighten screws in canopy end cap (E) to complete smooth fit.





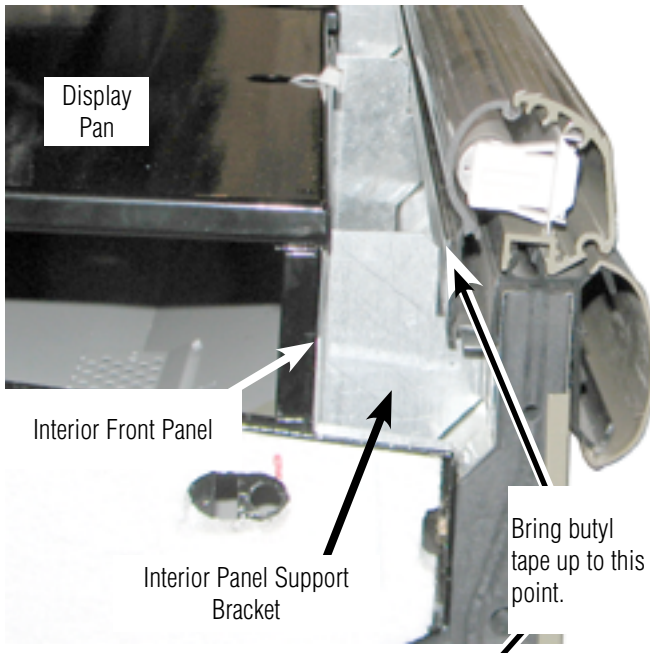
Tighten in Order Shown

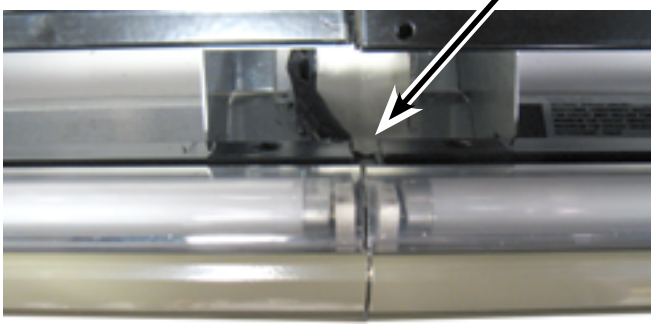
Seal Merchandisers

1. Remove interior front panel and interior panel support bracket to apply butyl tape. (Display pans were removed in earlier step.)

2. Apply butyl tape across the end shoe joint. Be sure to extend the tape up the back and front of the merchandiser.

Silicone sealer may be applied around joining bolts on both sides in bottom shoe but isn't necessary if neoprene washers are used.

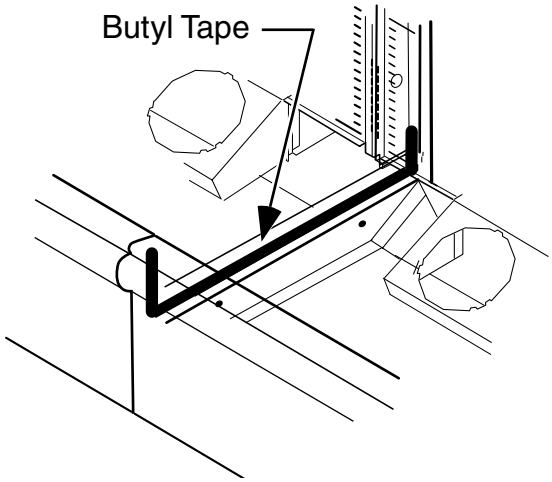




Front, looking down

⚠ CAUTION

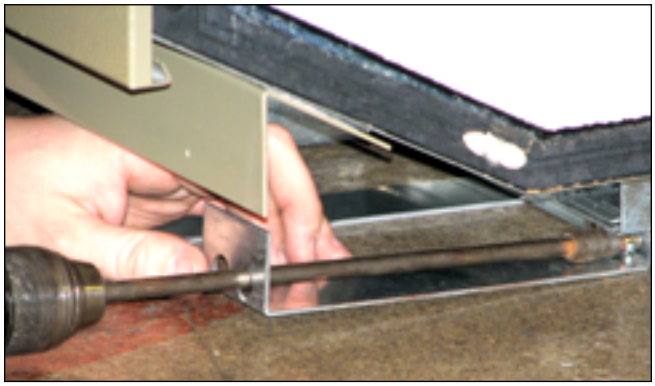
Install splashguard brackets before installing drip piping.

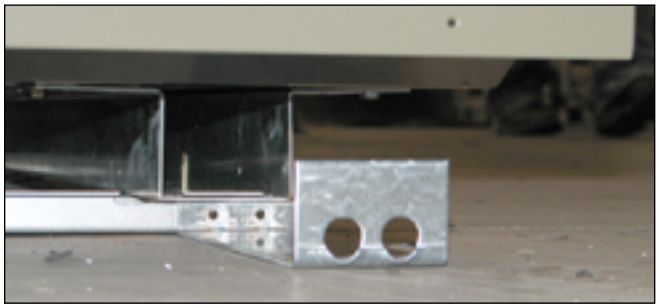


INSTALL SPLASHGUARD BRACKETS

Position splashguard brackets at the front of the merchandiser, on the floor, at 4 foot intervals. Each bracket has a 3⁄8 in. (10 mm) slot at the rear of the bracket to allow some adjustment where it attaches to the merchandiser. Use a driver extension to tighten screws that secure the brackets.

Once drip piping is complete, install splashguards as described in Section 3.





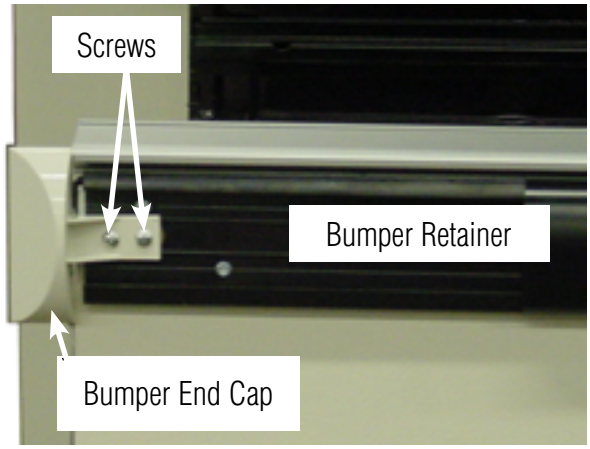
OFFSETTING BUMPER

Offsetting the bumper helps to disguise the joint locations, giving the lineup a smoother look.

1. Locate starter bumper shipped with the left-end kit.

2. Remove factory installed bumper by pulling bumper away from bumper retainer. Be careful not to lose the internal joint trim on the bumper.

3. If not installed, install bumper end caps as shown.



4. Starting at the left end of the line up, install the bumper starter section first. To install,

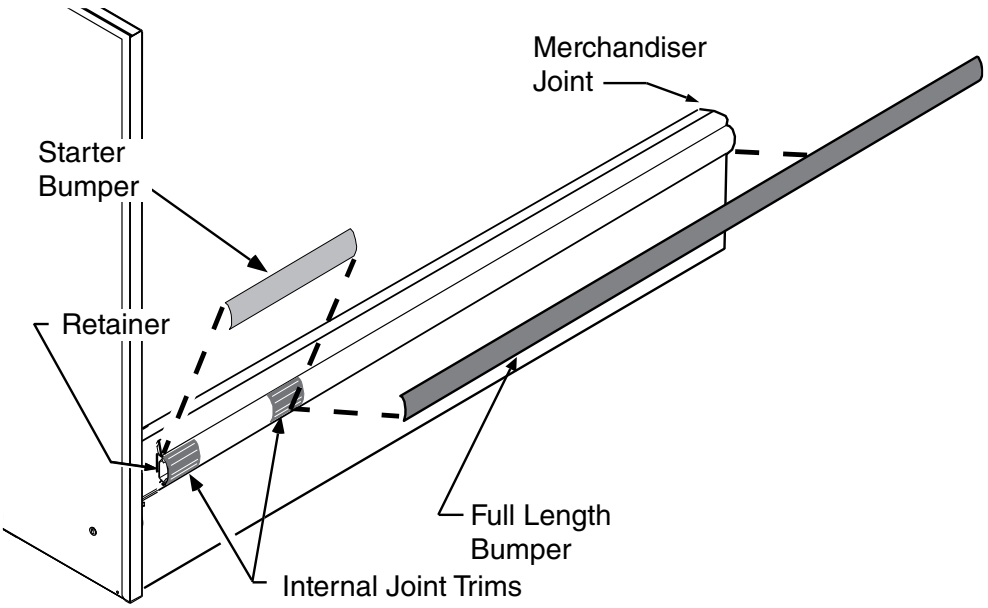
   a. Position internal joint trims so that the first is flush to the left-end panel and the second is centered between the starter bumper and the full length bumper as shown.

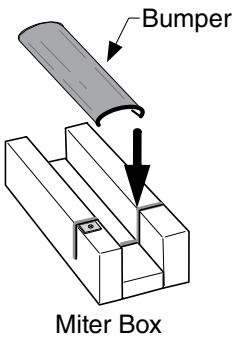
   b. Install full length bumpers and internal trims offset across joints. Make sure that no gaps exist between sections. Continue installing the bumpers the length of line up.

5. Once all except the last section of bumper have been installed refrigerate the merchan-diser line up for at least six (6) hours. **The last section of bumper should be kept inside a cooler or refrigerated merchandiser during this time.** This will allow the bumper to contract.

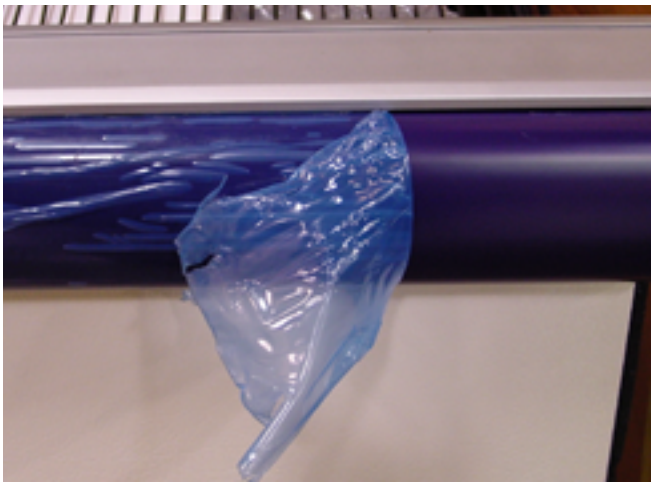
6. Go to the right end of the line up and tap the bumper to close any gaps.

7. Measure and cut last sections of bumper. Use a miter box and fine-tooth saw to cut last bumper to length. Install the last section.





8. Remove protective film from bumper once installation is complete.



IMPORTANT

Do not remove shipping braces from **BI-FOLD DOORS** until the lineup is complete including joining and end installation.

Bi-fold door set-up and operating instructions begin on Page 1-17

INSTALLING END ASSEMBLIES

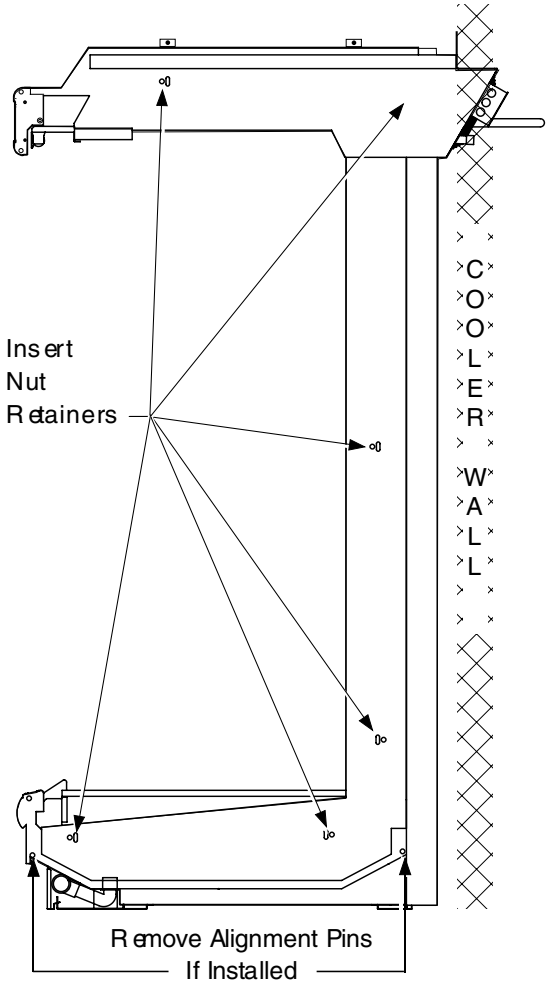
View End assemblies must be factory-installed. Solid End assemblies are normally factory installed. The following information is provided for retrofit or field installation.

1. Prepare Merchandiser

a. Install Nut Retainers into right end frame at locations shown.

b. **Optional Front Rail Light Only**
Check that end cap is in place before gaskets are applied. See Page 1-15 for details.

Ultra Low Front Rear Load



2. Apply Gaskets to End Frame as Follows:

a. Apply the 1⅝-inch gasket around the top of the case as shown. It must be at the edge. Check to be sure that there are no gaps between gasket and merchandiser.

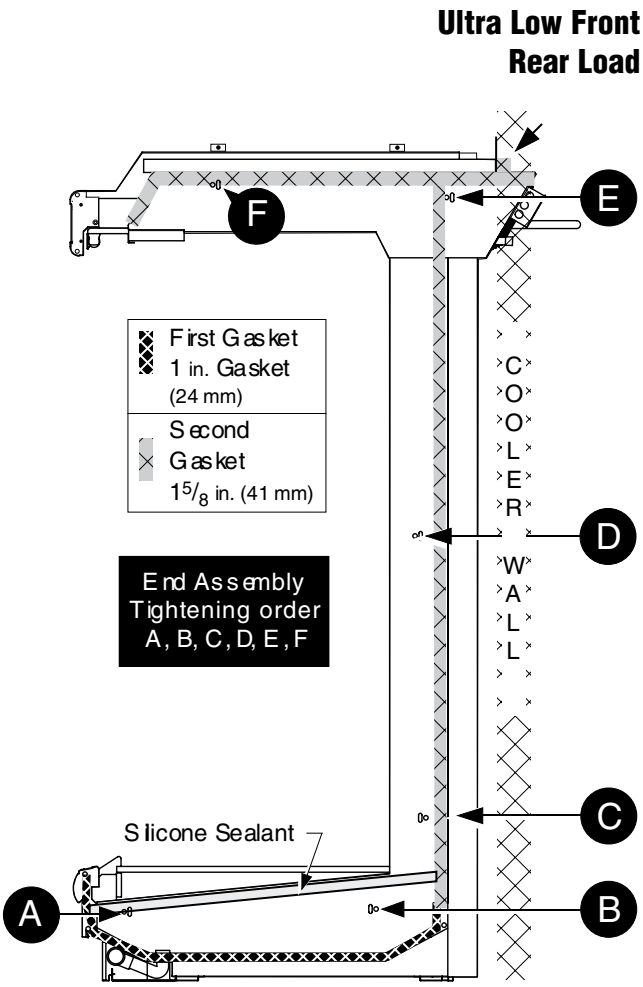
b. Apply the 1⅝ in. (41 mm) gasket on the metal frame upright as shown. Check to be sure that there are no gaps between merchandiser and gasket.

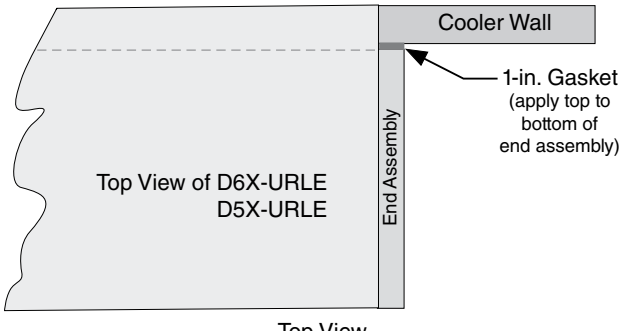
c. Apply the 1 inch (25 mm) gasket on the metal merchandiser frame as shown across the bottom. Check to be sure that there are no gaps between merchandiser and gasket.

d. Apply the 1⅝ in. (41 mm) gasket on the metal case frame as shown the rear. Check to be sure that there are no gaps between merchandiser and gaskets.

3. Apply Gaskets to End Assembly

d. Apply the 1 inch (25 mm) gasket to the back edge of the end assembly from top to bottom, where the end assembly meets the cooler wall. Lap gasket if necessary — do not butt ends. The gasket must fill any gap at the cooler wall.





IMPORTANT

- Do not stretch gasket, especially around corners.
- Do not butt gaskets; always overlap them as shown.
- Remove paper backing after gasket has been applied.
- *Perimeter gasket required by **NSF.***
- End caps required for rail light.

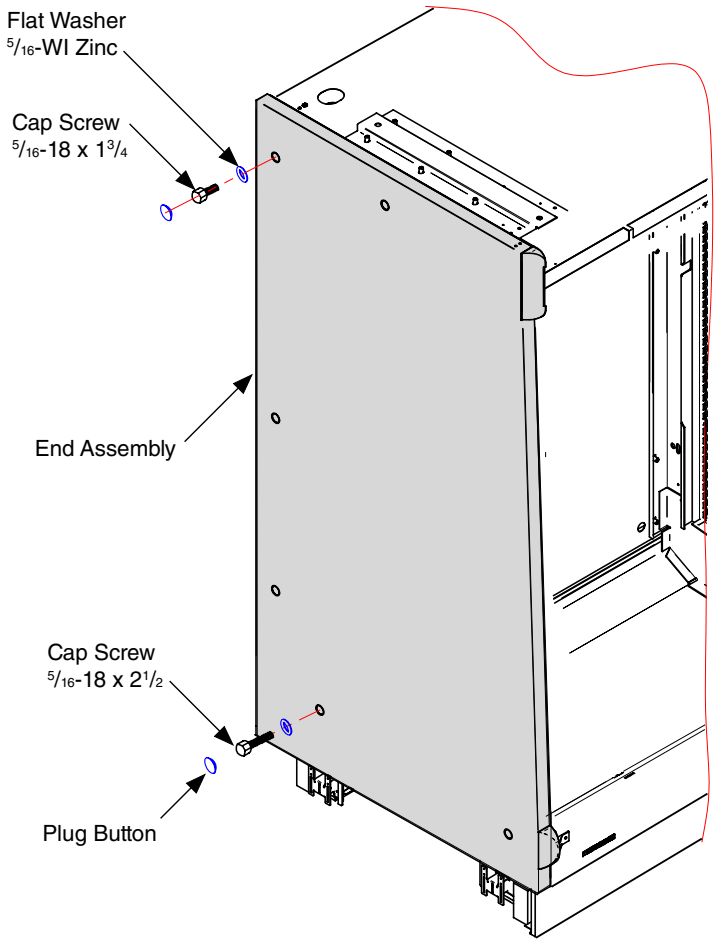
4. Fasten End Assembly to Merchandiser

a. Use Bolt and washer to fasten end assembly to merchandiser

b. Use washer with Hex Nut to secure bolt and washer at front and canopy (Detail A and B), similar to joining process.

c. Tighten in order shown on previous page. After fasteners have been tightened, insert Plug Buttons.

d. Install Top and Bottom Corner Castings as shown below.



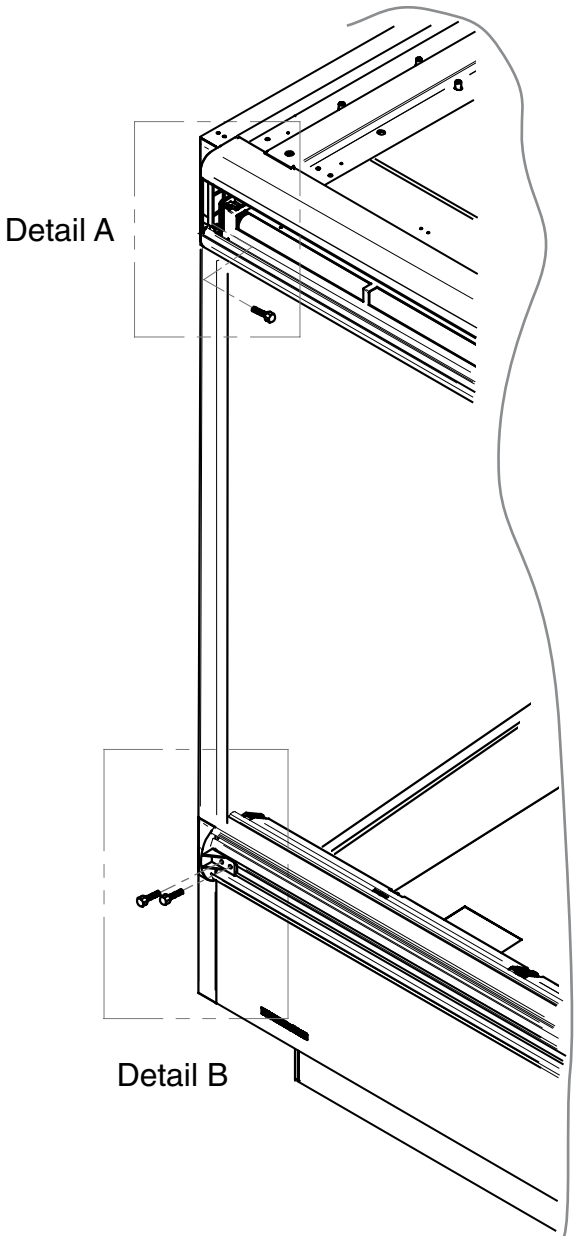
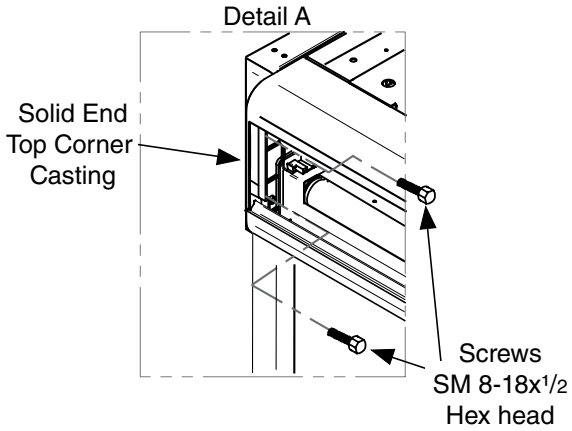
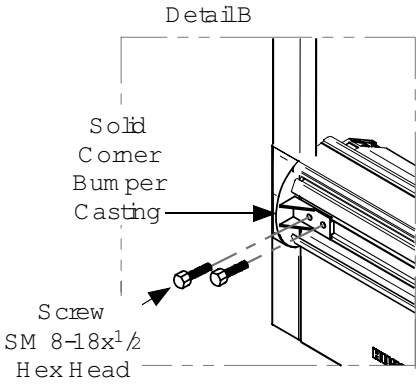


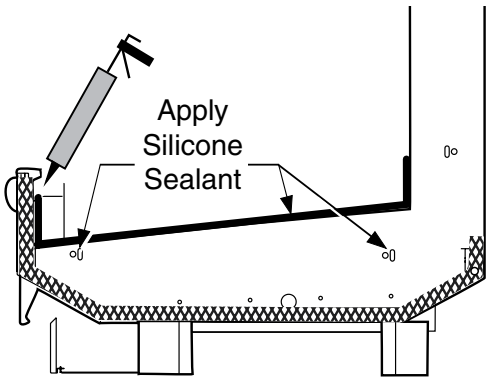
Figure 1





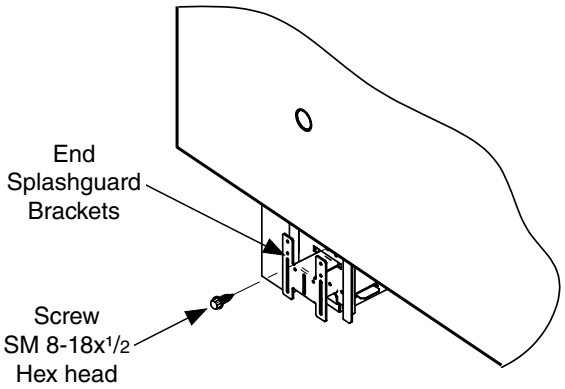
5. Seal End to End Frame

Remove front shelf and shelf support bracket. Apply a 1/2 in. bead of Silicone at the back of the case, starting at the first slot. Continue across the bottom and up the front as shown below. Use field-supplied silicone in any gap between front support bracket and end assembly.



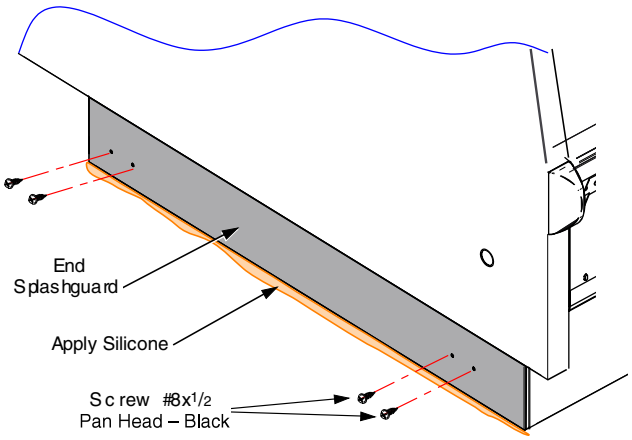
6. Install End Splashguard

a. Insert back of bracket through slot in leg. Use Screws to attach End Splashguard Retainers to end frame.



b. Align forward edge of End Splashguard with front splashguard, with lower edge resting on floor. Fasten End Splashguard to bracket with Screws.

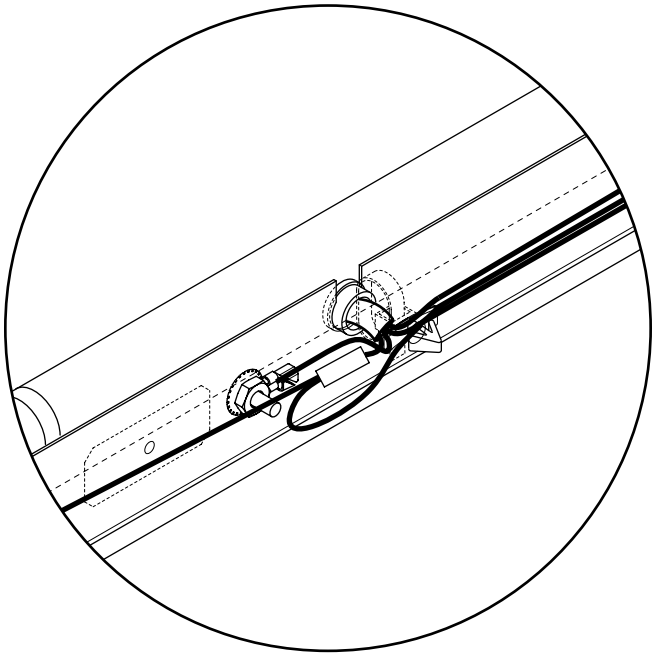
c. Seal splashguard to floor with silicone.



Re-install bumpers as described beginning on Page 1-10.

Note: Optional end bumpers are factory-installed only.

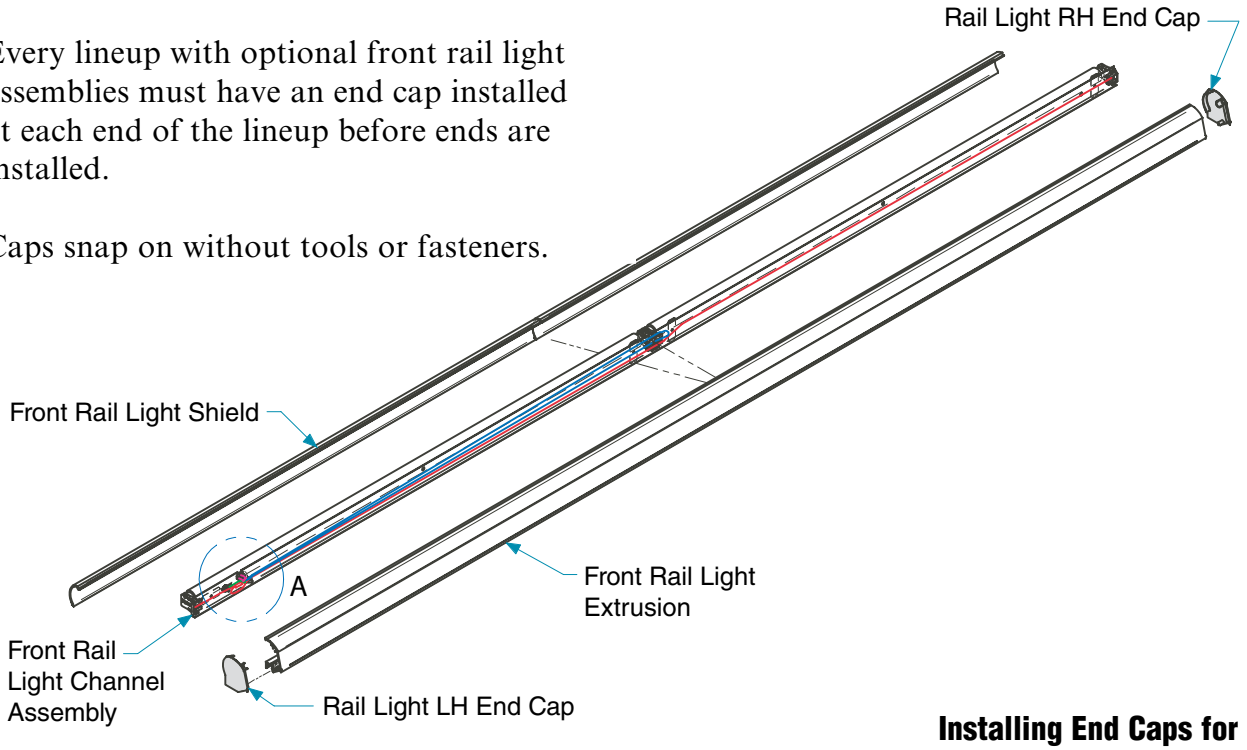
For reference, additional wiring detail is shown on the next page.



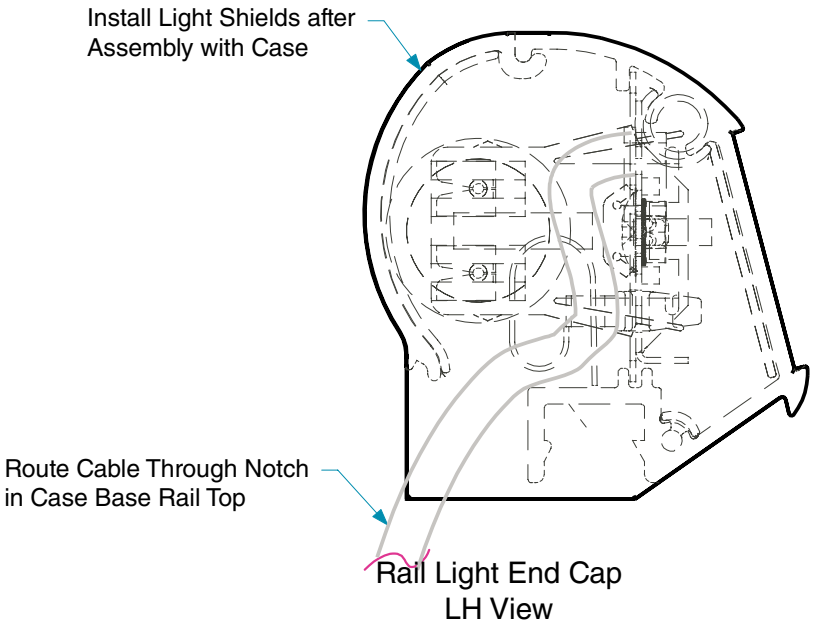
OPTIONAL FRONT RAIL LIGHT

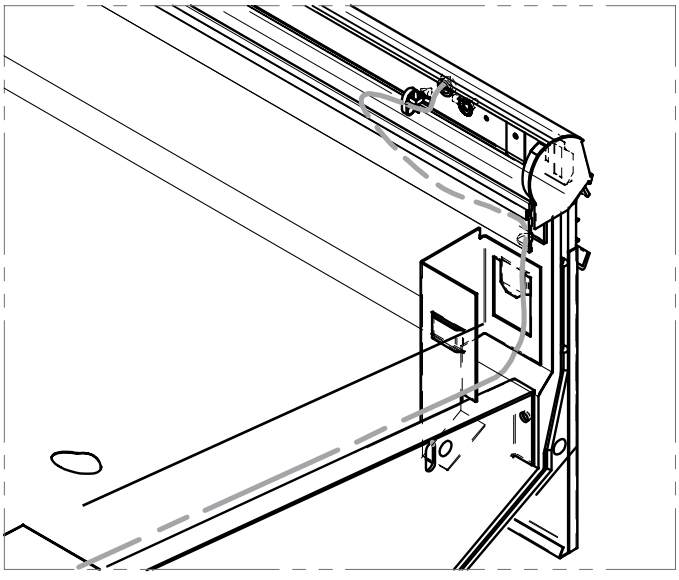
Every lineup with optional front rail light assemblies must have an end cap installed at each end of the lineup before ends are installed.

Caps snap on without tools or fasteners.


Rail Light RH End Cap
Front Rail Light Shield
A
Front Rail Light Extrusion
Front Rail Light Channel Assembly
Rail Light LH End Cap

Installing End Caps for Optional Front Rail Lights

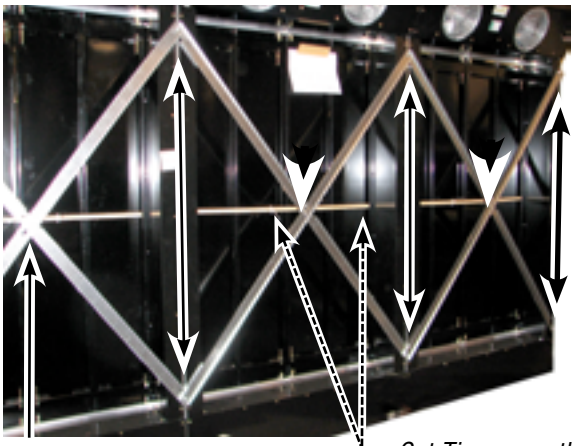

Install Light Shields after
Assembly with Case
Route Cable Through Notch
in Case Base Rail Top
Rail Light End Cap
LH View



BI-FOLD DOOR SETUP

The bi-fold rear loading doors are shipped with metal cross bracing to minimize dislocation due to vibration. All other steps must be complete (leveling, joining, sealing to cooler wall, and installing end) before setting doors.

Measure each opening to ensure it is squared (diagonal measurements must be equal). If the opening is not squared, the merchandiser is not level. Add shims as necessary to level the case as described on page 1-4.



Carefully remove fasteners from ends and center of the metal cross braces, then remove the braces. Recycle all according to local code.

Cut tiewraps attached to door handles to remove horizontal stabilizing bar.

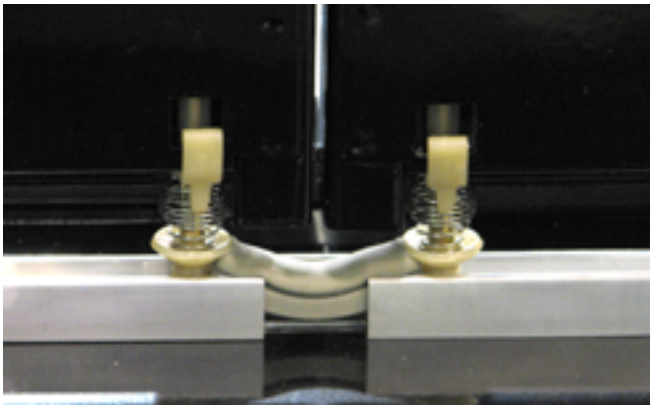
Look at each pair of doors.

• The vertical space between doors and between door and frame should be equal.

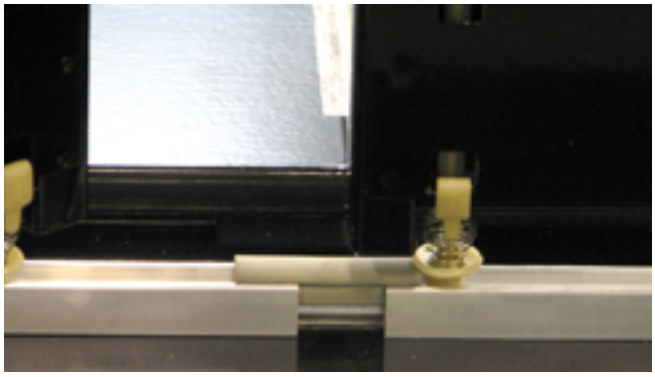
• Compare sets of doors — spaces across top and bottom should be about equal.
• Doors must be plumb to operate freely.

• Always use the handles to operate the doors.

• Verify a door stop is in the track at the center of each set of doors. The door stop holds the doors closed and prevents excessive vibration.



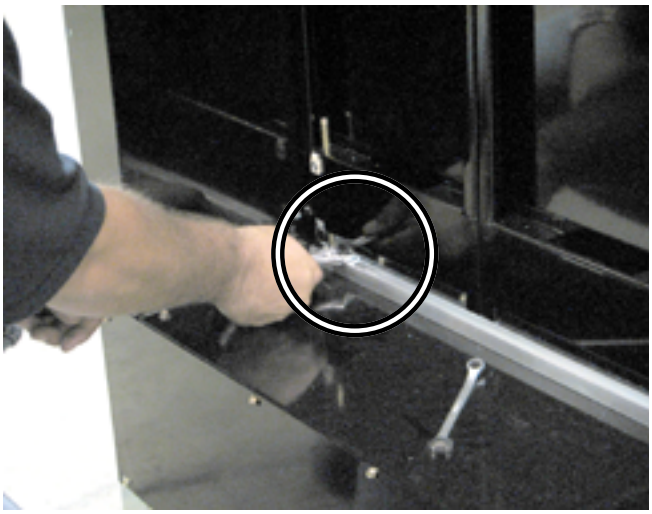
Door Stop with Doors Closed



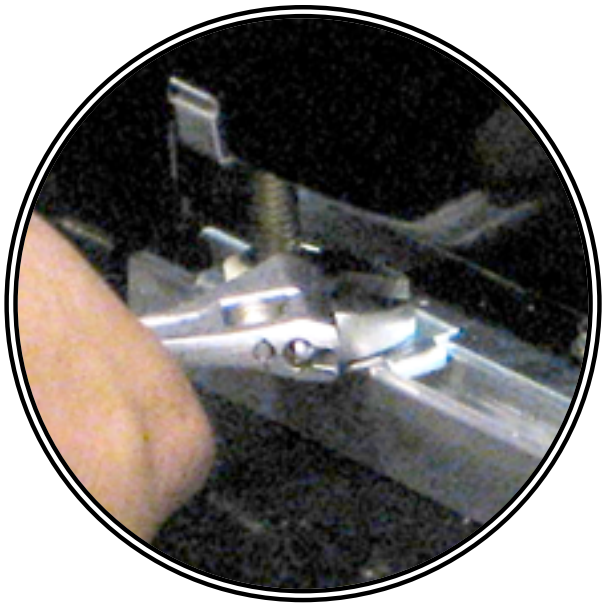
Door Stop with One Door Open

• Begin at one end of the merchandiser. If the left hand door is not plumb, use a wrench to loosen the upper and lower nuts; make the adjustment, then tighten the nuts

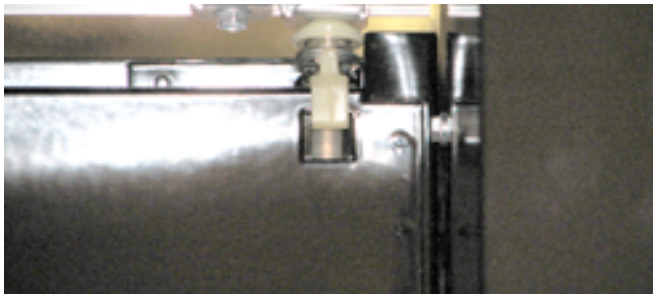
Properly adjusted doors will have equal vertical space between doors and between doors and frames.



Adjust Door Horizontally

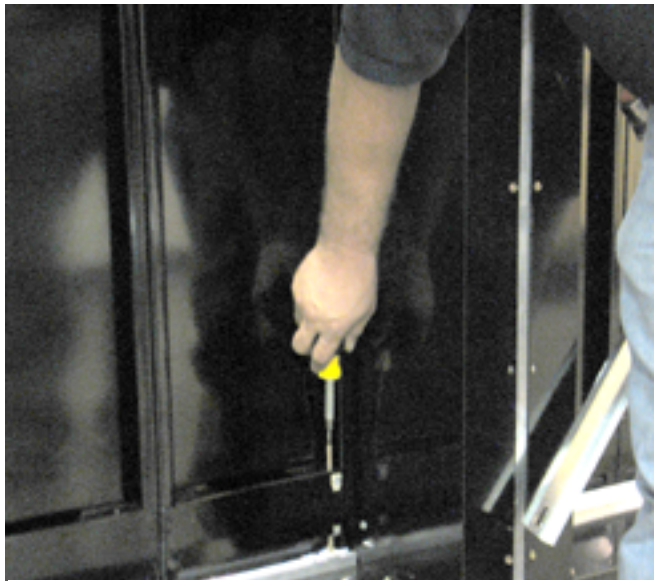


Detail — Use Adjustable Wrench on Nut



Top Adjustment

Adjust Door Horizontally

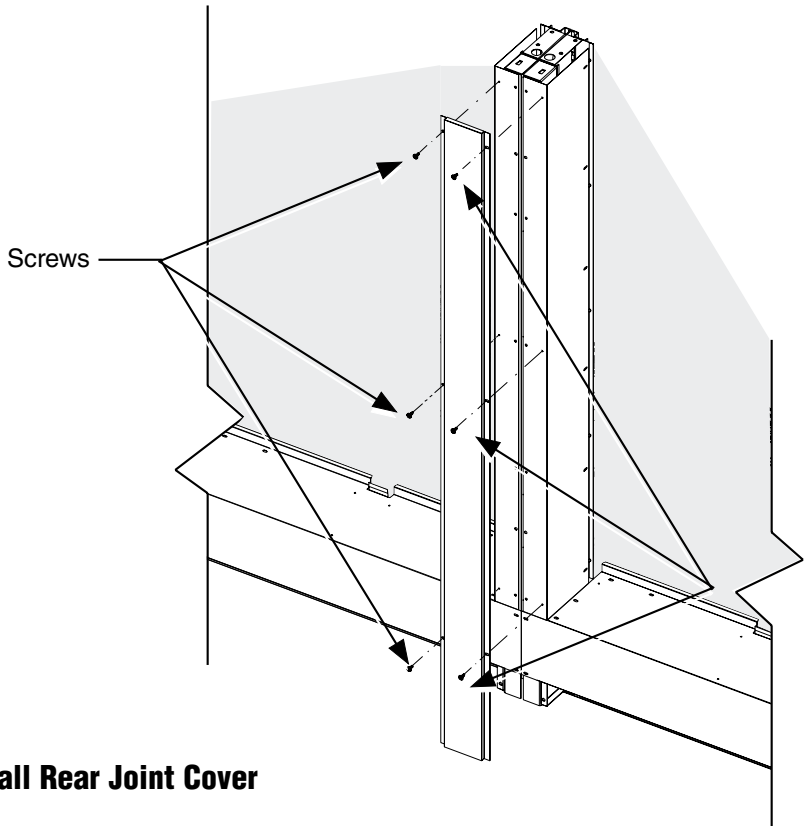


Use Screwdriver to Adjust Vertically

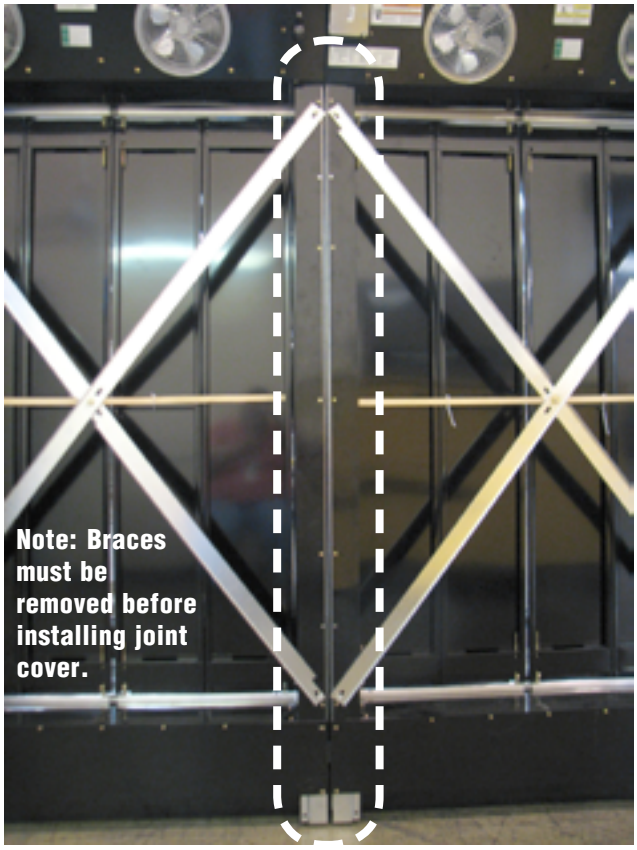
REAR JOINT COVER

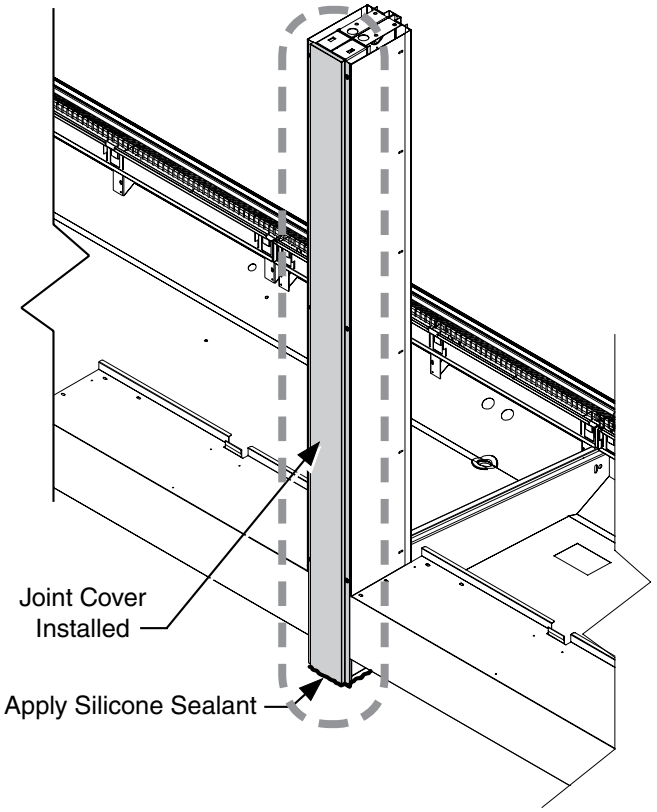
Install the Rear Joint Cover with fasteners provided.

Use silicone sealant to seal the base of the merchandiser uprights to the floor.



Install Rear Joint Cover





Notes:

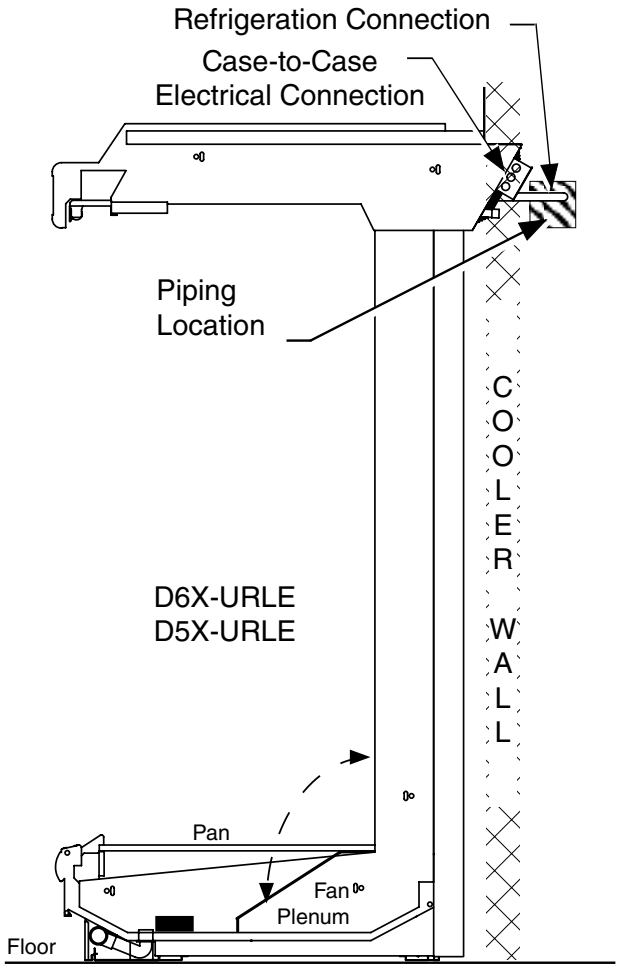
REFRIGERATION / ELECTRICAL

REFRIGERANT

The correct type of refrigerant will be stamped on each merchandiser's serial plate. The case refrigeration piping is leak tested, factory sealed and pressurized. Before making refrigeration hookups, depress the universal line valve to ensure that coils have maintained pressure during shipment.

⚠ WARNING

Refrigeration lines are under pressure and should be depressurized before attempting to make any connections.



REFRIGERANT PIPING

Connection Location

The refrigerant line connections are at the right- hand end of the merchandiser (as viewed from the back) at the back of the canopy.

Multiplexing

Piping of merchandisers operating on the same refrigeration system may be run from case to case. **DO NOT RUN REFRIGERANT LINES THROUGH MERCHANDISERS THAT ARE NOT ON THE SAME REFRIGERATION SYSTEM BRANCH** as this may result in poor refrigeration control and compressor failure.

Line Sizing

Refrigerant lines should be sized as shown on the refrigeration legend that is furnished for the store or according to ASHRAE guide-lines. Refer to the information on the next page for branch line piping of Hussmann Equipment.

Oil Traps

P-traps (oil traps) must be installed at the base of all suction line vertical risers.

Pressure Drop

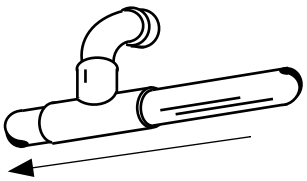
Pressure drop can rob the system of capacity. To keep the pressure drop to a minimum, keep the refrigerant line run as short as possible using a minimum number of elbows. Where elbows are required, USE LONG RADIUS ELBOWS ONLY.

INSULATION

Additional insulation for the balance of the liquid and suction lines is recommended wherever condensation drippage is objectionable or lines are exposed to ambient conditions.

SUCTION LINE

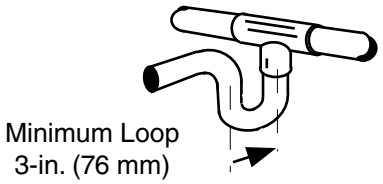
- Pitch in direction of flow.
- May be reduced by one size at one third of case run load and again after the second third. Do not reduce below the case suction line size.
- Case suction lines should enter at the top of the branch line.



Suction Line Return

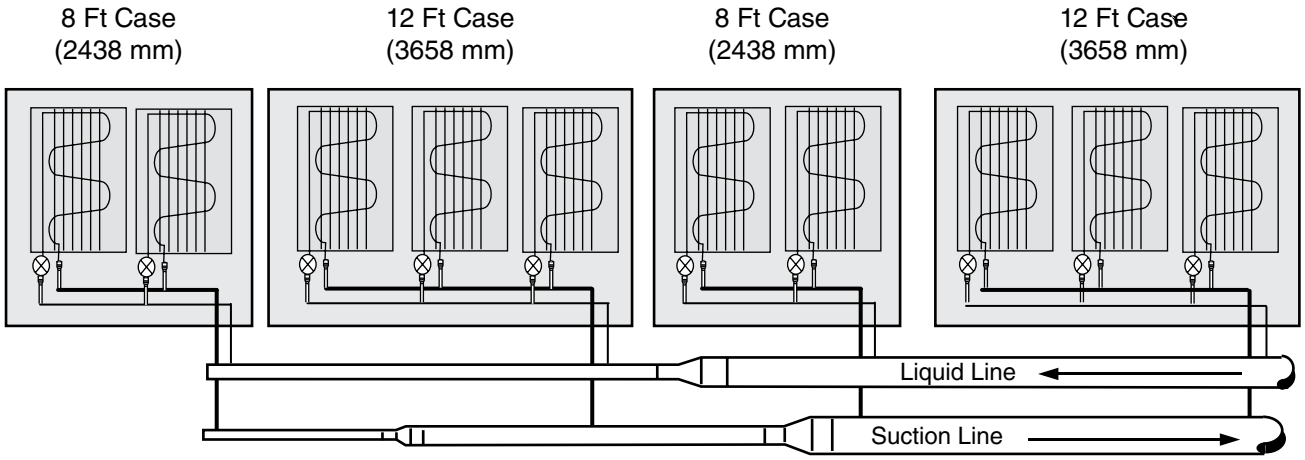
LIQUID LINE

- May be reduced by one size after one half the case run load. Do not reduce below the case liquid line connection size.
- Take-offs to case liquid lines should exit the bottom of the branch liquid line. Provide an expansion loop for each evaporator take-off (minimum 3 in. [76 mm] loop).



Liquid Line Take Off

Offtime Defrost



REFRIGERATION THERMOSTAT

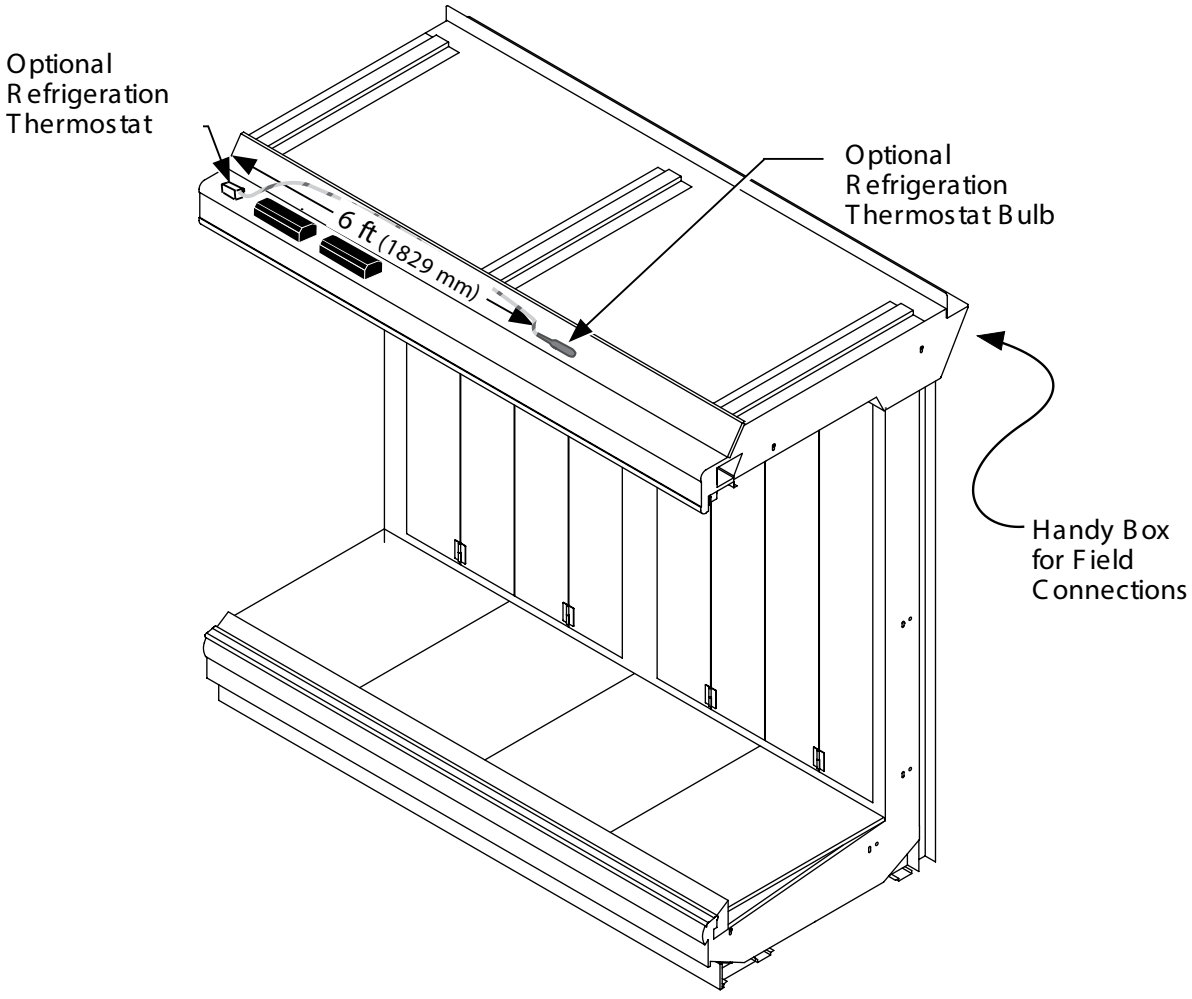
The bulb for the optional refrigeration thermostat is located above the honeycomb 6 ft (1829 mm) from the left end of the merchandiser. The optional refrigeration thermostat is located on top of the merchandiser.

DEFROST SEQUENCES

These merchandisers require defrost cycles for proper operation. Refer to the data sheets for application data.

The Time Clock initiates defrost. The evaporator fans continue to circulate air across the evaporator coil, melting any frost build-up.

Time Termination
Time termination is used for all applications



MERCHANDISER ELECTRICAL DATA

Technical data sheets are included with this manual. The data sheets provide case electrical data, electrical schematics, parts lists and performance data. Refer to the technical data sheets and case serial plate for electrical information.

ELECTRICAL CONNECTIONS

All wiring must be in compliance with NEC and local codes. All electrical connections are to be made in the electrical wireway or *Handy Box*. As shown on the previous page, the Handy Box for URLE models is at the back of the canopy.

⚠ CAUTION

Optional T8 rail lights and optional Quick Connect spray hose or field-installed misting system shall not be used together.

FIELD WIRING

Field wiring must be sized for component amperes stamped on the serial plate. Actual ampere draw may be less than specified. Field wiring from the refrigeration control panel to the merchandisers is required for optional refrigeration thermostats.

ALWAYS CHECK THE SERIAL PLATE FOR COMPONENT AMPERES.

IDENTIFICATION OF WIRING

Leads for all electrical circuits are identified by colored plastic bands. These bands correspond to the *color code sticker* (shown below) located on top of the merchandiser.

WIRING COLOR CODE

Leads for all electrical circuits are identified by a colored plastic band: neutral wire for each circuit has either White insulation or a White plastic sleeve in addition to the color band.

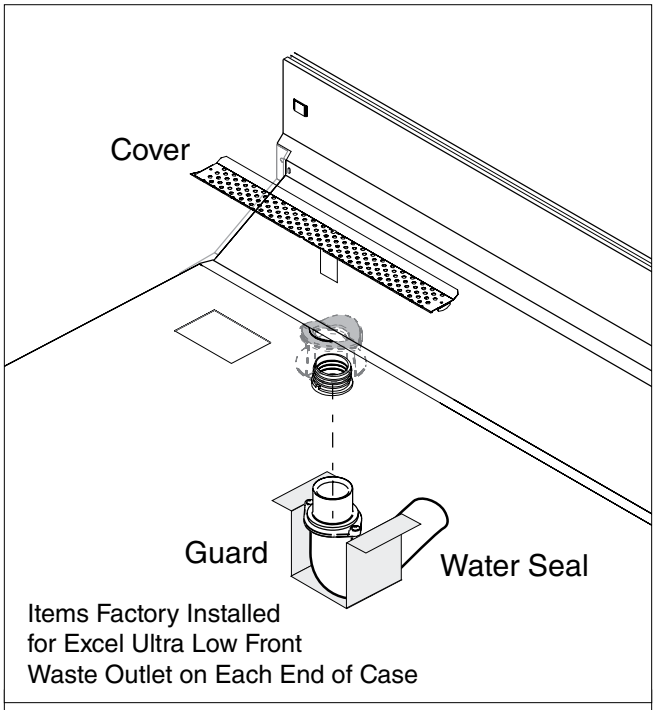
PINK..... REFRIG. THERMOSTAT LOW TEMP.	ORANGE OR
LIGHT BLUE . REFRIG. THERMOSTAT NORM TEMP.	TAN .....LIGHTS
DARK BLUE.. DEFROST TERM. THERMOSTAT	MAROON ..RECEPTACLES
PURPLE ..... CONDENSATE HEATERS	YELLOW ...DEFROST HEATERS 120V
BROWN..... FAN MOTORS	RED .....DEFROST HEATERS 208V
GREEN*..... GROUND	*EITHER COLORED SLEEVE OR COLORED INSULATION

ELECTRICIAN NOTE: Use copper conductor wire only.
CASE MUST BE GROUNDED

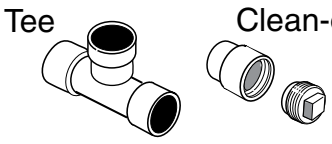
DRIP PIPING AND SPLASHGUARDS

WASTE OUTLET AND WATER SEAL

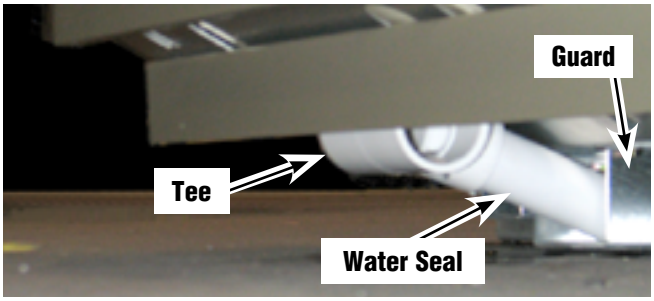
Each ultra low front merchandiser has two waste outlets located in front of the fan plenum 12 inches (305 mm) from either end. Water seals are factory-installed with waste outlets to prevent air leakage and insect entrance into the merchandiser. Do not remove the guard installed under the water seal—it prevents damage during shipment, installation and use. Two tees and clean-outs are supplied for each merchandiser.



Items Factory Installed
for Excel Ultra Low Front
Waste Outlet on Each End of Case



Factory Furnished Items to Be Installed



⚠ CAUTION

Splashguard brackets MUST be installed before piping merchandiser.

INSTALLING DRIP PIPING

Poorly or improperly installed drip pipes can seriously interfere with the merchandiser's operation and result in costly maintenance and product losses.

Optional drip pipe arrangements are shown on the next page. It is the installing contractor's responsibility to consult local agencies for local code requirements. Assemble the components using field-supplied PVC pipe, PVC fittings, and PVC primer and glue according to the manufacturers' direction.

Please follow the recommendations listed below when installing drip pipes to ensure proper installation.

1. Never use drip piping smaller than the nominal diameter of the pipe or water seal supplied with the merchandiser.

2. When connecting drip piping, the "water seal" must be used as part of the drip piping to prevent air leakage or insect entrance. Never use two water seals in series in any one drip pipe. **DOUBLE WATER SEALS IN SERIES WILL CAUSE AN AIR LOCK AND PREVENT DRAINING.**

3. Pitch the drip piping in the direction of flow. There should be a minimum pitch of $^1/_4$ in. per ft (20 mm per 1 m).

4. Avoid long runs of drip piping. Long runs make it impossible to provide the pitch necessary for good drainage.

5. Provide a suitable air break between flood rim of the floor drain and outlet of drip pipe. To meet code on low base merchandisers, it may be necessary to install a field-supplied drip pipe reducer. An alternative is to cut the last section of drip pipe at an angle.

Drip piping must be per merchandiser and connect below floor level for Ultra Low Front models.

6. Prevent drip pipes from freezing:

   a. Do NOT install drip pipes in contact with uninsulated suction lines. Suction lines should be insulated with a nonabsorbent insulation material.

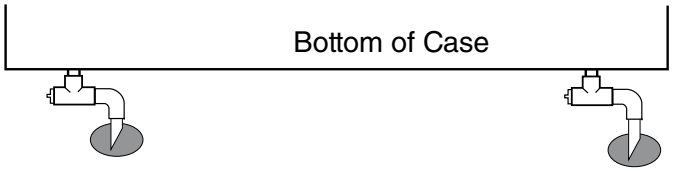
   b. Where drip pipes are located in dead air spaces, such as between merchandisers or between a merchandiser and a store wall, provide means to prevent freezing.

It is the installing contractor's responsibility to consult

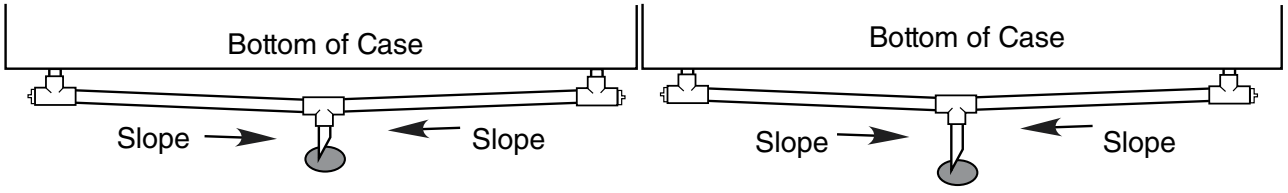
local agencies for local code requirements.

IMPORTANT

ONE FLOOR DRAIN IS REQUIRED FOR EACH MERCHANDISER



Attach tee to factory-installed water seal — Do NOT install additional water seals!



Always Slope toward Floor Drain

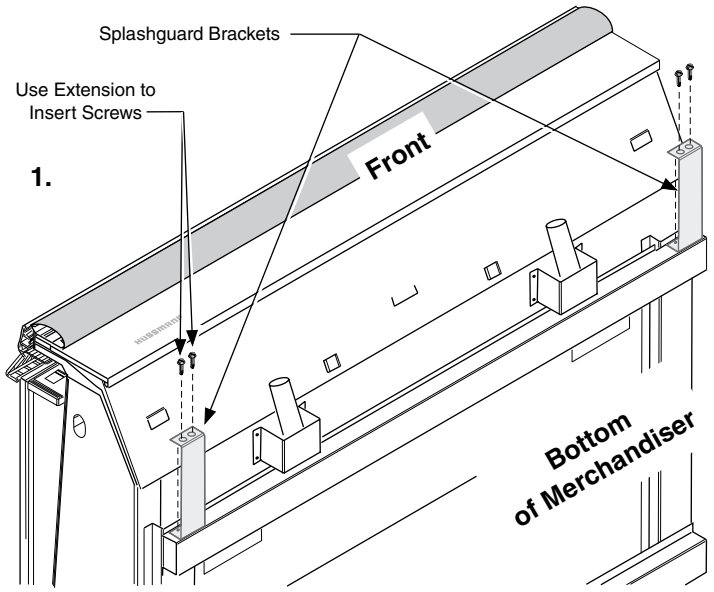
Optional Excel Ultra Low Front Drip Piping Arrangements

INSTALLING SPLASHGUARDS

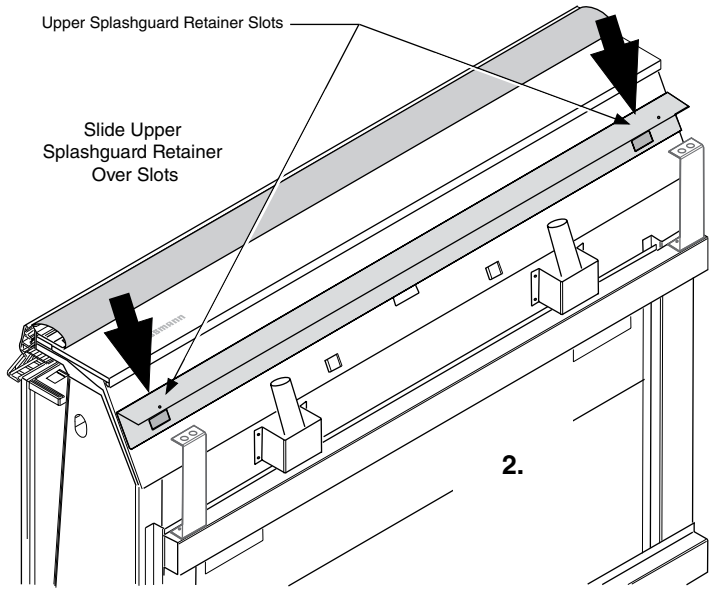
The splashguard is shipped inside each merchandiser. **AFTER** merchandisers have been leveled and joined, and all drip piping, electrical and refrigeration work has been completed, install the splashguard.

To Install Splashguards:

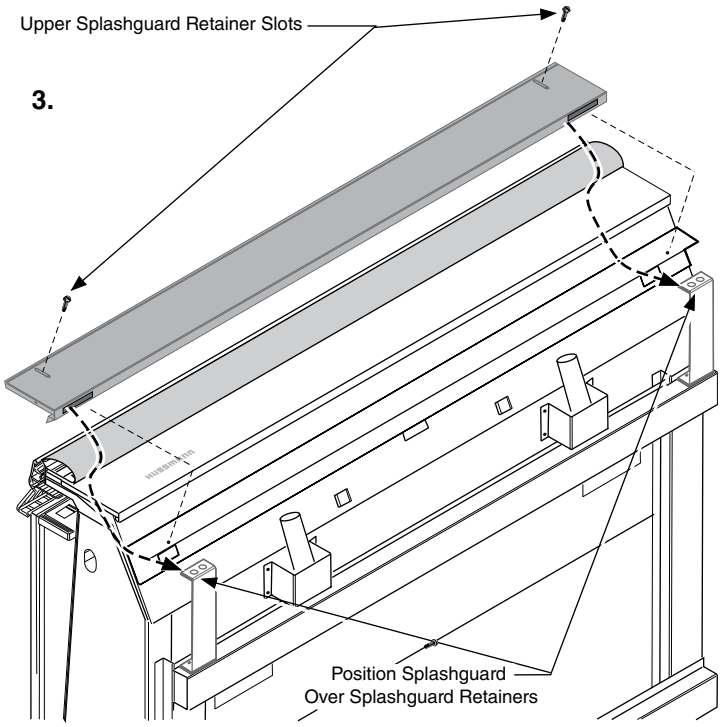
1. Check to be sure that all splashguard retainers are level with the floor and fastened to the rail.



2. Align the tabs in the upper splashguard support with the slots extending out from the front color panel, then slide the upper splashguard into place. The upper splashguard support should be level.



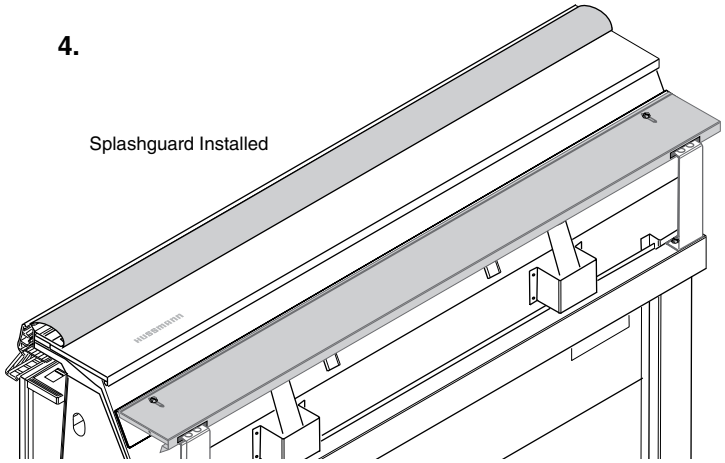
3. Position splashguard bottom slot over the splashguard retainer on each end of the merchandiser, and align the screw slots with the hold in the upper support. Fasten the splashguard to the upper
support with self-drilling screws.



4. Seal the splashguard to the floor using silicone sealant.

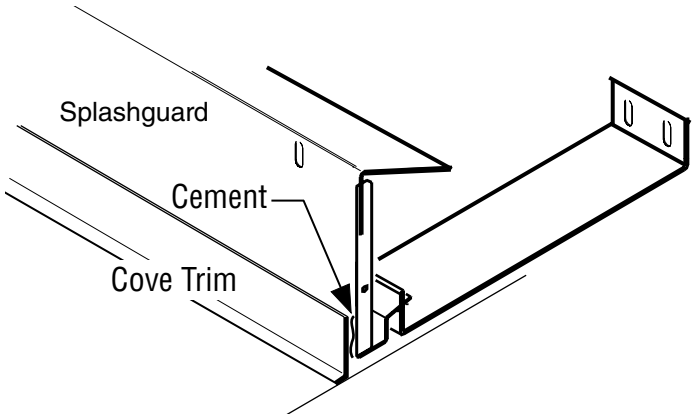
If silicone will not fill gaps caused by uneven floor, field-supplied cove trim should be used.

To install the cove trim to the splashguard:
1. Remove all dirt, wax and grease from the area of the splashguard where adhesion will be necessary to ensure a secure installation.



2. Apply a good contact cement to the cove trim and allow proper drying time according to the directions supplied with the cement.

3. Install the trim to the splashguard so that it is lying flush with the floor. DO NOT SEAL THE TRIM TO THE FLOOR.



4. **If required by local health codes** the Cove Trim may be sealed to the floor, using a silicone type sealer. Sealant must be removed and replaced when servicing.

START UP / OPERATION

START UP

See the merchandiser's Technical Data Sheet (TDS) for refrigerant settings and defrost requirements. Bring merchandisers down to the operating temperatures listed on the data sheet.

Each four foot section has its own evaporator coil and pre-set non-adjustable thermostatic expansion valve (TEV). No adjustment is required. **DO NOT REMOVE THE CAP ON THE TEVS.** This cap is to be removed only for valve disassembly. Removal of this cap during case maintenance will result in refrigerant loss unless the system is first isolated and the refrigerant recovered.

⚠ CAUTION

REMOVAL OF THE TEV CAP
WILL RESULT IN REFRIGERANT LOSS
UNLESS THE SYSTEM IS FIRST ISOLATED
AND THE REFRIGERANT RECOVERED.

The TEV has been factory set to provide the recommended performance settings as specified on the merchandiser data sheets.

LOAD LIMITS

Each merchandiser has a load limit. Shelf life of perishables will be short if load limit is violated. **AT NO TIME SHOULD MERCHANDISERS BE STOCKED BEYOND THE LOAD LIMITS INDICATED.**

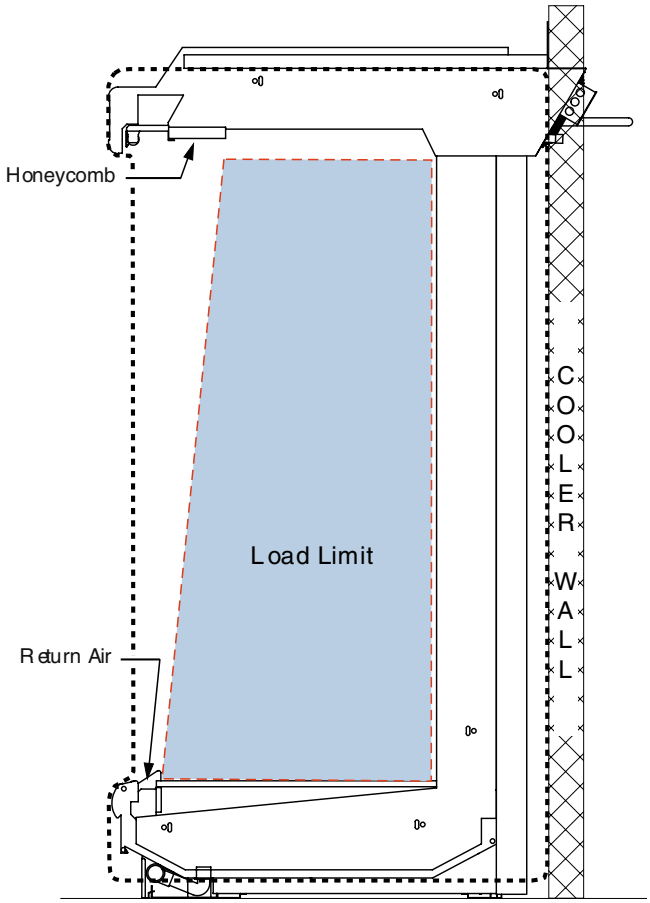
DO NOT BLOCK HONEYCOMB OR RETURN AIR GRILLE.

STOCKING

Product should NOT be placed inside of merchandisers until merchandiser is at proper operating temperature.

Proper rotation of product during stocking is necessary to prevent product loss. Always bring the oldest product to the front and set the newest to the back.

AIR DISCHARGE AND RETURN FLUES MUST REMAIN OPEN AND FREE OF OBSTRUCTION AT ALL TIMES to provide proper refrigeration and air curtain performance. Do not allow product, packages, signs, etc. to block these grilles. Do not use non-approved shelving, baskets, display racks, or any accessory that could hamper air curtain performance.



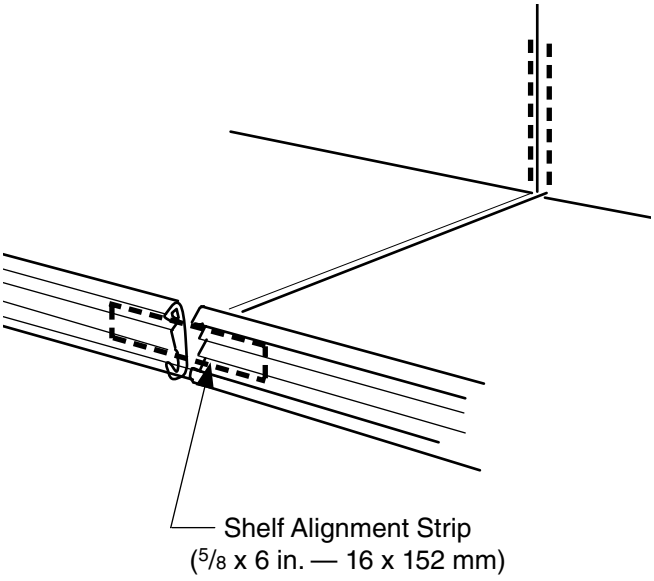
MULTI-DECK SHELF ALIGNMENT

Taped to one of the shelves of each merchandiser is a small plastic bag containing shelf alignment strips. These strips are designed to enhance the appearance of the shelves by aligning the front edge of each shelf with that of an adjacent shelf.

When installing shelves:

1. Insert one of the alignment strips into the slot behind the front edge of each shelf.

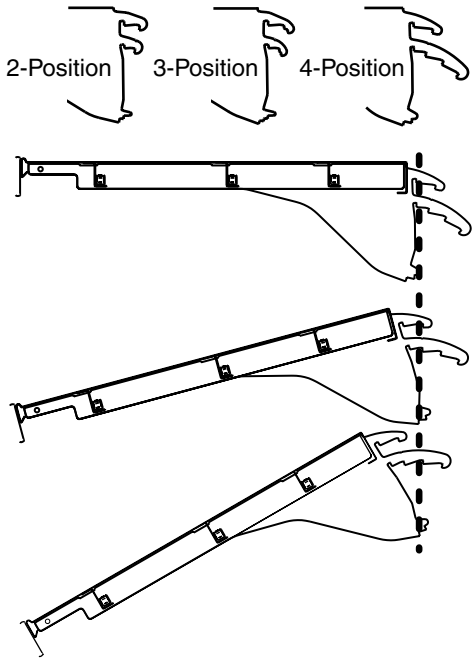
2. After all shelves are installed, slide the strip across the shelf joint wherever two shelves are adjacent. This will lock them together.



MULTI-DECK SHELF CONFIGURATION

Shelves are individually mounted in 1 in. (25 mm) increments and have two-, three-, or four-position brackets permitting shelves to be placed in a flat or down-tilt position (see illustration). Front product stops are recommended when shelves are placed in the down-tilt position.

Case performance will be degraded if peg shelves are used without baffles. Unauthorized specialty shelving may cause poor merchan-diser performance also. Consult your Hussmann representative to ensure optimum performance of Hussmann equipment. Note that lighted shelves cannot be used in rear load merchandisers.



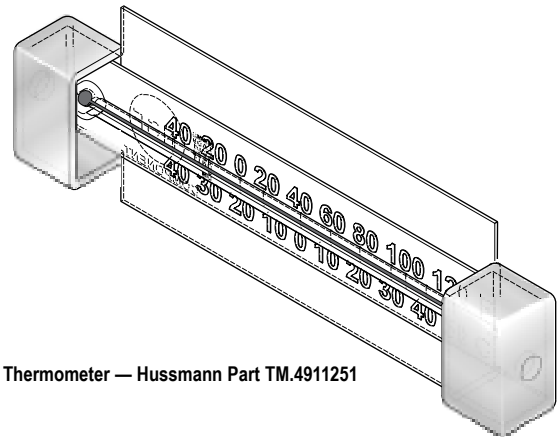
INSTALLING FDA/NSF REQUIRED THERMOMETER

The following pages provide the same information that ships with the thermometer.

This requirement does not apply to display refrigerators intended for bulk produce (refer to page 1-1).

Please note that the tape cannot be exposed after installation.

This is an NSF-7 & US FDA Food Code Required Thermometer



Thermometer — Hussmann Part TM.4911251

Hussmann Corporation • 12999 St. Charles Rock Road • Bridgeton, MO 63044-2483
U.S. & Canada 1-800-922-1919 • Mexico 1-800-522-1900 • www.hussmann.com
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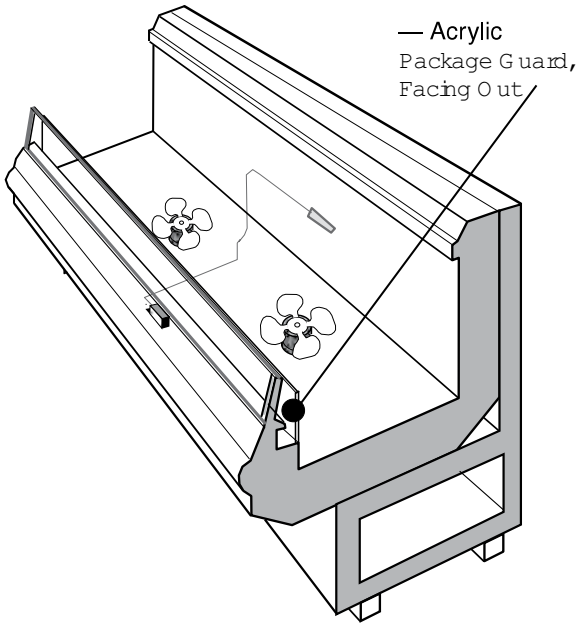
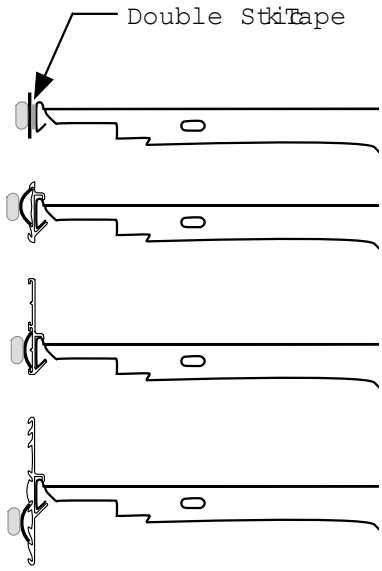
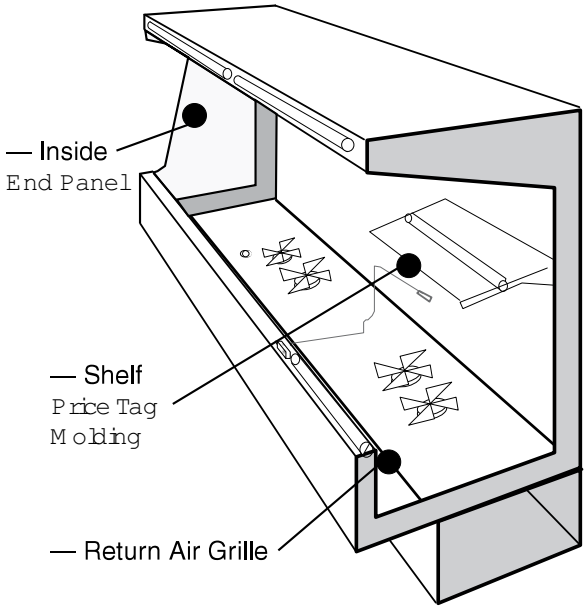
Suggested Mounting Locations in Single Deck Glass Front Impact Merchandisers







Suggested Mounting Locations in Multi-deck Merchandisers

Hussmann P/N 0429971_C 10/2007

Important – Please read!

This thermometer is provided in response to United States Food and Drug Administration (US FDA) Food Code [http://www.fda.gov/] and National Sanitation Foundation (NSF / ANSI) Standard 7 [http://www.nsf.org/]

Each installation will be different depending on how the unit is stocked, shopping patterns in the department and ambient conditions of the store. The suggested locations provided herein are possible locations. It is the responsibility of the purchaser / user to determine the location within the food storage area of the unit that best meets the code requirements above.

The thermometer may need to be moved several times to find the warmest location. Mounting options include flexible plastic for price tag molding application, magnet applied to back of flexible plastic for steel end wall, and double stick tape. Tape must not be exposed after installation.

Questions about either code should be addressed to local agencies or other appropriate officials.

Keep with merchandiser

or give to store manager.

DO NOT DESTROY.

MAINTENANCE

CARE AND CLEANING

Long life and satisfactory performance of any equipment is dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, these merchandisers should be thoroughly cleaned, all debris removed and the interiors washed down, weekly.

Fan Plenum
To facilitate cleaning, the fan plenum is hinged. After cleaning be sure the plenum is properly lowered into position OR PRODUCT LOSS WILL RESULT due to improper refrigeration.

⚠ WARNING

SHUT FANS OFF DURING CLEANING PROCESS.

Fascia Panels
The fascia panels lift out, left to right, and should be cleaned with a mild detergent and warm water. **DO NOT USE AMMONIA-BASED PRODUCTS TO CLEAN OPTIONAL ACRYLIC PANELS. NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.**

Exterior Surfaces
The exterior surfaces must be cleaned with a mild detergent and warm water to protect and maintain their attractive finish. **NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.**

⚠ WARNING

Do not use HOT water on COLD glass surfaces. This can cause the glass to shatter and could result in personal injury. Allow glass fronts, ends and service doors to warm before applying hot water.

Interior Surfaces
The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface. Always read and follow the manufacturer's instructions when using any cleaning product.

Do NOT Use:

•Abrasive cleansers and scouring pads, as these will mar the finish.

• Coarse paper towels on coated glass.

•Ammonia-based cleaners on acrylic parts.

•A hose on lighted shelves or submerge the shelves in water.

•Solvent, oil or acidic based cleaners on any interior surfaces.

•A hose on rail lights, canopy lights or any other electrical connection.

⚠ WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

⚠ WARNING

Do NOT allow cleaning agent or cloth to contact food product.

Do:

•Remove the product and all loose debris to avoid clogging the waste outlet.

•Store product in a refrigerated area such as a cooler. Remove only as much product as can be taken to the cooler in a timely manner.

•First turn off refrigeration, then disconnect electrical power.

•Thoroughly clean all surfaces with soap and hot water. **DO NOT USE STEAM OR HIGH WATER PRESSURE HOSES TO WASH THE INTERIOR.** THESE WILL DESTROY THE MERCHANDISERS' SEALING
CAUSING LEAKS AND POOR PERFORMANCE.

•Lift hinged fan plenum for cleaning. Hook chain in rear panel to secure plenum during cleaning.
BE SURE TO REPOSITION THE FAN PLENUM AFTER CLEANING MERCHANDISER.

•Take care to minimize direct contact between fan motors and cleaning or rinse water.

•Rinse with hot water, but do NOT flood. **NEVER INTRODUCE WATER FASTER THAN THE WASTE OUTLET CAN REMOVE IT.**

•Allow merchandisers to dry before resuming operation.

•Wipe down lighted shelves with a damp sponge or cloth so that water does not enter the light channel. **DO NOT USE A HOSE OR SUBMERGE SHELVES IN WATER.**
•After cleaning is completed, turn on power to the merchandiser.

CLEANING HONEYCOMB ASSEMBLIES

Honeycombs should be cleaned every six months. Dirty honeycombs will cause merchandisers to perform poorly. The honeycombs may be cleaned with a vacuum cleaner. Soap and water may be used if all water is removed from the honeycomb cells before replacing. Be careful not to damage the honeycombs.

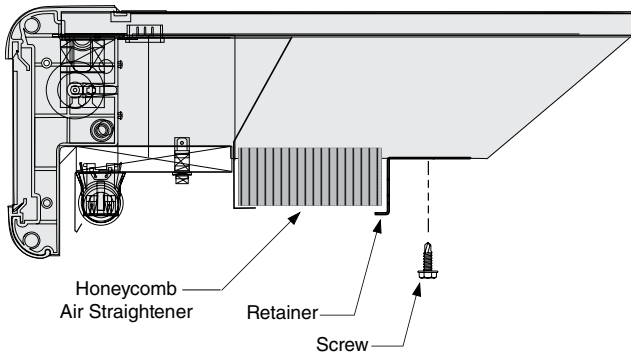
Multi-deck Cases

1. Loosen or remove screw to free honeycomb.

2. Clean and dry the honeycomb.

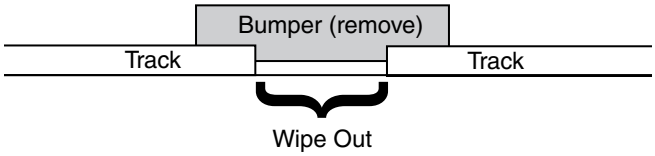
3. After cleaning, replace honeycomb and slide retainer forward. Reinstall screw.

   Damaged honeycomb must be replaced.



CLEANING DOOR TRACKS

The bi-fold door mechanism is contained in tracks at the top and bottom of each door. To ensure optimum operation, the tracks must be kept clear of debris at all times.



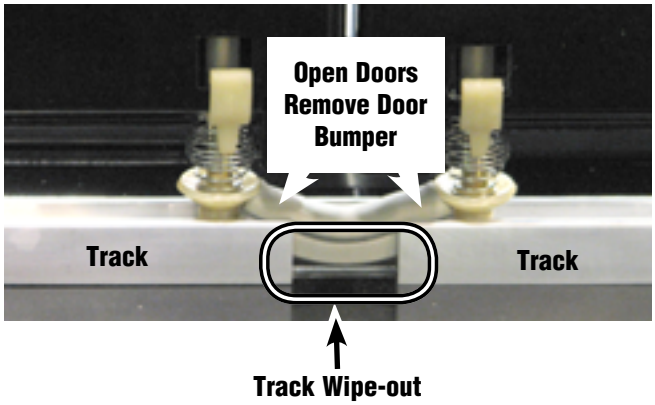
1. Do not allow liquids to collect in the tracks.

2. Clean tracks at least weekly:

   • Remove door bumpers from tracks to ensure complete cleaning.

   • Use track wipe-outs, located at the center of each track, when cleaning.

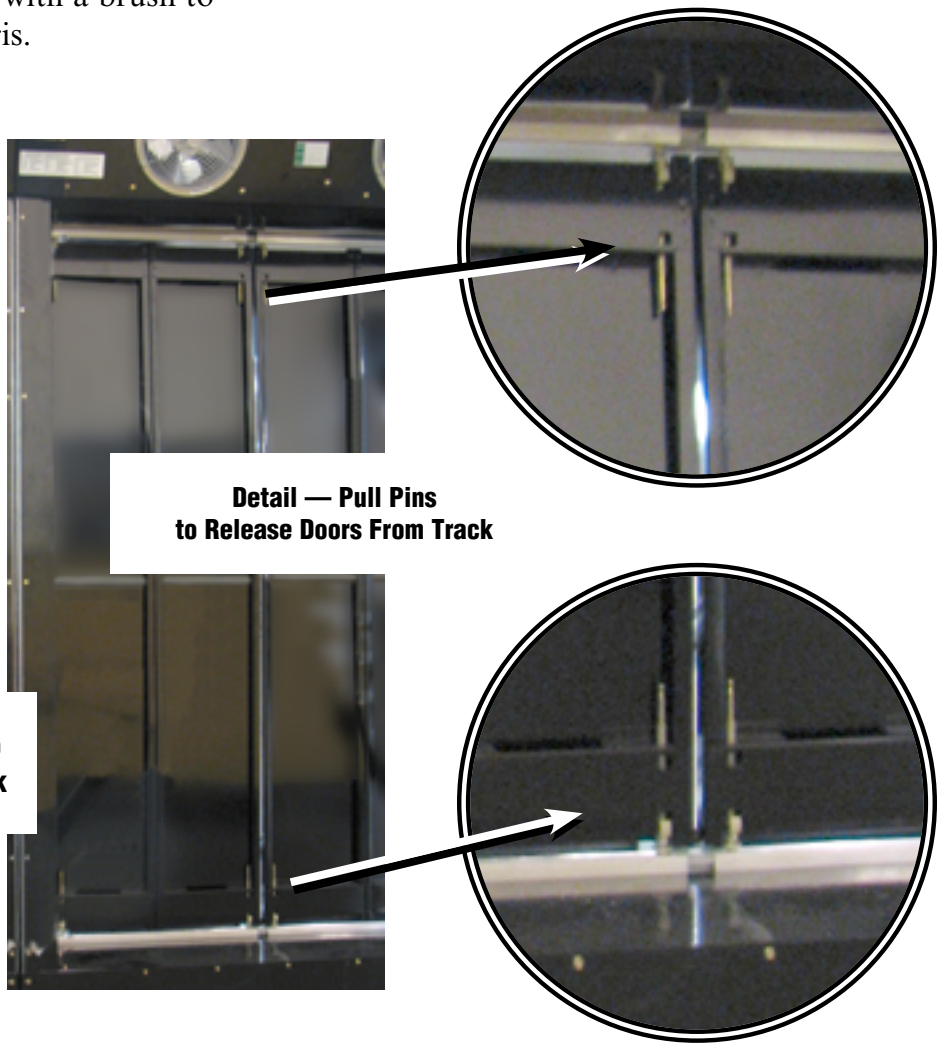
   • Use soap and hot water with a brush to remove accumulated debris.



3. If necessary, the bi-fold doors may be opened fully. Pull the upper and lower pins to release center doors from track. Be sure to seat the pins fully when returning the door to the track.

4. Replace door bumpers after cleaning.

5. Do not add lubricant to the door mechanism.



MAINTAINING FLUORESCENT LAMPS

Fluorescent lamps should not be allowed to run to failure. If a re-lamp schedule is not in place, the tubes should be inspected for signs of degradation (blackened ends). Degraded or failed tubes should be replaced.

Allowing severely degraded lamps to operate may cause a ballast failure or could expose the lamp holder to excessive heat. Replacing degraded bulbs is more cost effective than replacing ballast and lamp-holders.

Traditional re-lamp programs are 18- to 24-month intervals. In the absence of a re-lamp program, a yearly inspection of the lightning system is recommended.

1. Inspect all lamp sockets and plug–receptacle connections for signs of arcing. Replace any component that shows signs of arcing.

2. Make sure all unused receptacles have their close-off covers securely installed.

3. Make sure proper cleaning procedures are followed. Lights and fans MUST be turned off when a case is cleaned and MUST be allowed to dry before turning power back on.

4. Do not use a pressure nozzle to clean inside a case.

CLEANING STAINLESS STEEL RAILS

Use non-abrasive tools, and always polish with grain of the steel.

Use alkaline chlorinated or non-chlorine containing cleaners. Do not use cleaners containing salts as this may cause pitting and rusting of the stainless steel finish.

Clean frequently to avoid build-up of hard, stubborn stains. Rinse and wipe dry immediately after cleaning. Never use hydrochloric acid (muratic acid) on stainless steel.

CLEANING UNDER MERCHANDISERS

Remove splashguards not sealed to floor. Use a vacuum with a long wand attachment to remove accumulated dust and debris from under the merchandiser.

REMOVING SCRATCHES FROM BUMPER

Most scratches and dings can be removed using the following procedure.

1. Use steel wool to smooth out the surface area of the bumper.

2. Clean area.

3. Apply vinyl or car wax and polish surface for a smooth glossy finish.

SERVICE

Only a certified technician should preform service to Hussmann refrigerated merchandisers.

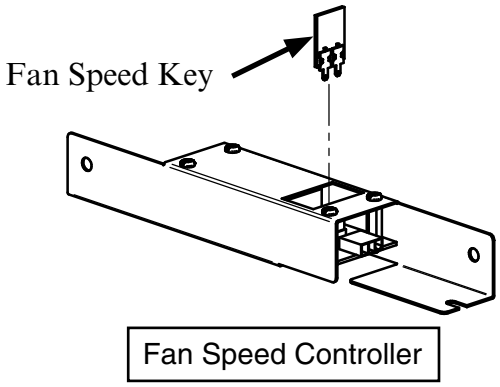
⚠ WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

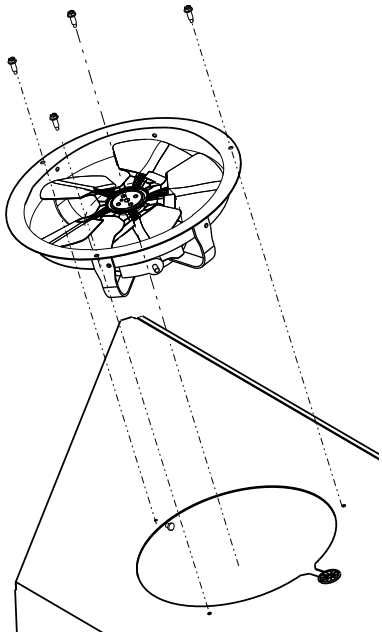
REPLACING FAN MOTORS AND BLADES

Fan control electronics are electrostatic sensitive (ESD). If the case is equiped with an optional fan controller, use a grounding kit before handling. See Page 1-4 for more information.



See cross section for location of evaporator fans. Should it ever be necessary to service or replace the fan motors or blades be certain that the fan blades are re-installed correctly.

For access to these fans:



1. Turn off power.
2. Remove bottom display pans.
3. Disconnect fan from wiring harness.
4. Remove fan blade.
5. Remove screws holding fan motor/ bracket assembly to plenum and remove assembly.
6. Replace fan motor/bracket assembly and reinstall screws.
7. Reinstall fan blade.
8. Reconnect fan to wiring harness.
9. Turn on power.
10. Verify that motor is working and blade is turning in the correct direction.
11. Close air gaps under fan plenum. Warmer air moving into refrigerated air reduces effective cooling. If the plenum does not rest against the case bottom without gaps, apply foam tape to the bottom of the fan plenum to reduce improper air movement. Use silicone sealant to close other gaps.
12. Replace display pans. Bring merchandiser to operating temperature before restocking.

REPLACING LED CANOPY LIGHT BARS

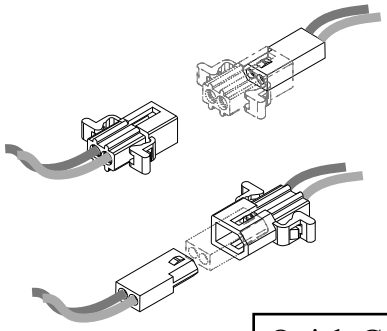
LED canopy lights come standard for Insight merchandisers and Insight merchandisers with EcoVision II Plus Doors. Canopy lights are powered by a 24 VDC power supply. The power supply(s) are located in the case canopy behind fascia panels.

The canopy light bars are attached to the canopy light channel with mounting clips. The electrical wiring has a quick connect that can be unplugged.

1. To replace a canopy light bar, carefully remove the light bar from the clip, replace with like Hussmann fixture, and connect the new wiring to the quick connect.

2. Return power, and switch the light switch on and off to ensure lights work properly.

Canopy Light Bar



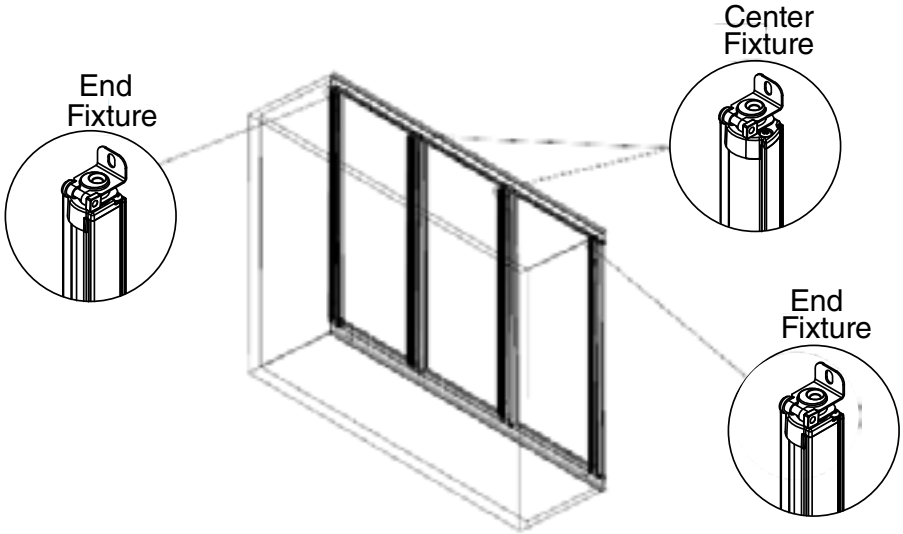
Quick Connect

REPLACING LED VERTICAL MULLION LIGHT BARS

LED vertical mullion lights are an available lighting option for EcoVision II Plus doors. Center fixtures illuminate the middle of the case, and the end fixtures illuminate the ends, or sides of the case.

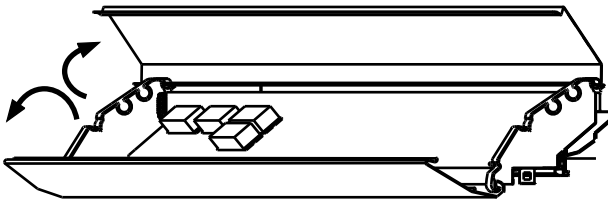
These LEDs have different shaped lenses. They are not to be interchanged. Contact your Hussmann representative to order replacements.

The light bars are attached to the door mullions with mounting clips, and can be replaced similar to the canopy lights — just remove them from the mounting clips, and connect new wires at quick connect.



REPLACING LED POWER SUPPLIES

Replacing electrical components should only be performed by a qualified service technician. The 24 VDC power supplies for the LEDs are located at the top of the merchandiser inside the canopy.

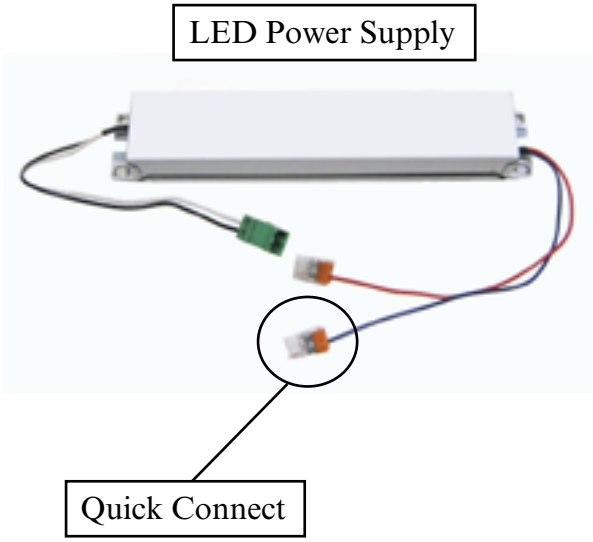


Power Supply(s) inside Wireway

1. **DISCONNECT POWER TO THE MERCHANDISER.**

2. Flip canopy fascia panel out to find the power supply(s) in the wireway behind canopy panel.

3. Remove the screws that secure the power supply(s), and disconnect the LED wiring at the quick connects.



4. Remove the old power supply, and install new power supply. Replace parts in reverse order. All connections must be made in the wireway.

5. Reconnect the electrical power. Turn on light switch on and off to ensure lights work properly.

24VDC power supplies must be replaced with Class 2 Hussmann power supply to ensure proper operation. Contact your Hussmann representative to order replacement kits.

REPAIRING ALUMINUM COIL

The aluminum coils used in Hussmann Insight merchandisers may be easily repaired in the field. Materials are available from local refrigeration wholesalers.

Hussmann recommends the following solders and technique:

Solders

Aladdin Welding Products Inc.
P.O. Box 7188
1300 Burton St.
Grand Rapids, MI 49507
Phone: 1-800-645-3413
Fax: 1-800-645-3414

X-Ergon
1570 E. Northgate
P.O. Box 2102
Irving, TX 75062
Phone: 1-800-527-9916

NOTE:

Hussmann Aluminum melts at (607°C)	1125°F
Aladdin 3-in-1 rod at (389°C)	732°F
X-Ergon Acid core at (235°C)	455°F

Technique:

1. Locate Leak.

2. REMOVE ALL PRESSURE.

3. Brush area UNDER HEAT.

4. Use PRESTOLITE TORCH ONLY. Number 6 tip.

5. Maintain separate set of stainless steel brushes and USE ONLY ON ALUMINUM.

6. Tin surface around area.

7. Brush tinned surface UNDER HEAT, thoroughly filling the open pores around leak.

8. Repair leak. Let aluminum melt solder, NOT the torch.

9. Don't repair for looks. Go for thickness.

10. Perform a leak check.

11. Wash with water.

12. Cover with a good flexible sealant.

HUSSMANN®

To obtain warranty information or other support, contact your Hussmann representative. Please include the model and serial number of the product.

Hussmann Corporation, Corporate Headquarters: Bridgeton, Missouri, U.S.A. 63044-2483 01 October 2012

Hussmann Corporation
12999 St. Charles Rock Road
Bridgeton, MO 63044-2483
www.hussmann.com